

A1-F18AC-460-200

1 JULY 2002

TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE TESTING AND TROUBLESHOOTING

FUEL SYSTEM

**NAVY MODEL
F/A-18A AND F/A-18B
161353 AND UP**

N68936-01-D-0007

This manual supersedes A1-F18AC-460-200, dated 15 June 1988 thru Change 9, dated 1 July 1999.

DISTRIBUTION STATEMENT C. Distribution authorized to U.S. Government agencies and their contractors to protect publications required for official use or for administrative or operational purposes only, determined on 15 October 1987. Other requests for this document shall be referred to Commanding Officer, Naval Air Technical Data and Engineering Service Command, Naval Air Station North Island, P.O. Box 357031, Building 90 Distribution, San Diego, CA 92135-7031.

DESTRUCTION NOTICE. For unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.

PUBLISHED BY DIRECTION OF COMMANDER, NAVAL AIR SYSTEMS COMMAND

0801LP1018540

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES

List of Current Changes

Original 0 1 July 02

Only those work packages/pages assigned to the manual are listed in this index. Insert Change __, dated _____. Dispose of superseded work packages/pages. If changed pages are issued to a work package, insert the changed pages in the applicable work package. The portion of text affected in a change or revised work package/page is indicated by change bars or the change symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands or change bars as applicable.

WP Number	Title	WP Number	Title
Title		018 00	Test, Wing Fuel Transfer System
Page A	Numerical Index of Effective Work Packages/Pages	019 00	Troubleshooting, Wing Transfer System
TPDR-1	List of Technical Publications Deficiency Reports	020 00	Component Locator, Wing Fuel Transfer System
	Incorporated	021 00	Test, Fuel Pressurization and Vent System
001 00	Alphabetical Index	022 00	Troubleshooting, Fuel Pressurization and Vent System
002 00	Introduction	022 01	Troubleshooting Part II, Fuel Pressurization and Vent System
003 00	Test, Refuel/Defuel System		
003 01	Troubleshooting, Refuel/Defuel System	022 02	Troubleshooting, Fuel Dump System
003 02	Component Locator, Refuel/Defuel System	023 00	Component Locator, Fuel Pressurization and Vent System
004 00	Test, Inflight Refueling System	024 00	Test, Fuel Quantity Gaging and Low Level Warning System
005 00	Troubleshooting, Inflight Refueling System		
006 00	Component Locator, Inflight Refueling System	024 01	Component Locator, Fuel Quantity Gaging System
007 00	Refuel/Transfer Test, External Fuel System	024 02	Component Locator, Fuel Quantity Low Level Warning System
008 00	Troubleshooting - Refuel, External Fuel System		
009 00	Troubleshooting - Transfer, External Fuel System	025 00	Troubleshooting, Fuel Quantity Gaging System
010 00	Pressure Switches Test, External Fuel System	026 00	Troubleshooting Part I, Fuel Low Level Warning System
011 00	Component Locator, External Fuel System	026 01	Troubleshooting Part II, Fuel Low Level Warning System
012 00	Internal Fuel Transfer and Engine Fuel Supply System	026 02	Troubleshooting Part III, Fuel Low Level Warning System
012 01	Reserved	027 00	Capacitance Measurement At Intermediate Device, Fuel Quantity Gaging System
012 02	Transfer Leak Test, Internal Fuel Transfer System		
012 03	No. 1 Fuel Tank Transfer Test, Internal Fuel Transfer System	027 01	Intermediate Device Output to Signal Data Recorder, RO-508/ASM-612 Test, Fuel Quantity Gaging System
012 04	No. 2 Fuel Tank Cycle Test, Internal Fuel Transfer System	027 02	Intermediate Device Output to Fuel Qty Indicator Test, Fuel Quantity Gaging System
012 05	No. 3 Fuel Tank Cycle Test, Internal Fuel Transfer System		
012 06	No. 4 Fuel Tank Transfer Test, Internal Fuel Transfer System	028 00	No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test, Fuel Quantity Gaging System
012 07	Engine Fuel Shutoff Test and Turbine Boost Pump Test, Engine Fuel Supply System	029 00	No. 2 Fuel Tank Fuel Quantity Transmitter Capacitance Test, Fuel Quantity Gaging System
012 08	Test, Internal Fuel Transfer and Engine Fuel Supply System	030 00	No. 3 Fuel Tank Fuel Quantity Transmitter Capacitance Test, Fuel Quantity Gaging System
012 09	Test, Internal Fuel Transfer and Engine Fuel Supply System		
013 00	Troubleshooting, Internal Fuel Transfer and Engine Fuel Supply System	031 00	No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test, Fuel Quantity Gaging System
013 01	Troubleshooting Part II, Internal Fuel Transfer and Engine Fuel Supply System	032 00	Left Wing Fuel Quantity Transmitter Capacitance Test, Fuel Quantity Gaging System
013 02	Troubleshooting Part III, Internal Fuel Transfer and Engine Fuel Supply System	033 00	Right Wing Fuel Quantity Transmitter Capacitance Test, Fuel Quantity Gaging System
014 00	Component Locator, Internal Fuel Transfer and Engine Fuel Supply System	034 00	External Tank Fuel Quantity Transmitter Capacitance Test, Fuel Quantity Gaging System
015 00	Test, Hot Fuel Recirculation System	035 00	Troubleshooting, CG Control System
016 00	Troubleshooting, Hot Fuel Recirculation System	035 01	Troubleshooting, CG Control System
017 00	Component Locator, Hot Fuel Recirculation System	036 00	Troubleshooting, Pressure Transducers

Total number of pages in this manual is 918, consisting of the following:

WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number
Title	0	002 00		48 Blank	0	005 00	
A - B	0	1 - 7	0	003 02		1 - 22	0
C Blank	0	8 Blank	0	1 - 15	0	006 00	
TPDR-1	0	003 00		16 Blank	0	1 - 10	0
TPDR-2 Blank	0	1 - 12	0	004 00		007 00	
001 00		003 01		1 - 8	0	1 - 24	0
1 - 2	0	1 - 47	0				

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES (Continued)

WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number
008 00		30 Blank	0	26 Blank	0	027 01	
1 - 32	0	012 09		022 00		1 - 10	0
009 00		1 - 27	0	1 - 21	0	027 02	
1 - 14	0	28 Blank	0	22 Blank	0	1 - 8	0
010 00		013 00		022 01		028 00	
1 - 17	0	1 - 37	0	1 - 6	0	1 - 13	0
18 Blank	0	38 Blank	0	022 02		14 Blank	0
011 00		013 01		1 - 4	0	029 00	
1 - 14	0	1 - 28	0	023 00		1 - 7	0
012 00		013 02		1 - 19	0	8 Blank	0
1	0	1 - 6	0	20 Blank	0	030 00	
2 Blank	0	014 00		024 00		1 - 7	0
012 01 Reserved		1 - 32	0	1 - 6	0	8 Blank	0
012 02		015 00		024 01		031 00	
1 - 17	0	1 - 17	0	1 - 11	0	1 - 12	0
18 Blank	0	18 Blank	0	12 Blank	0	032 00	
012 03		016 00		024 02		1 - 11	0
1 - 17	0	1 - 7	0	1 - 10	0	12 Blank	0
18 Blank	0	8 Blank	0	025 00		033 00	
012 04		017 00		1 - 18	0	1 - 11	0
1 - 18	0	1 - 10	0	026 00		12 Blank	0
012 05		018 00		1 - 12	0	034 00	
1 - 18	0	1 - 16	0	026 01		1 - 8	0
012 06		019 00		1 - 13	0	035 00	
1 - 23	0	1 - 4	0	14 Blank	0	1 - 22	0
24 Blank	0	020 00		026 02		035 01	
012 07		1 - 6	0	1 - 14	0	1 - 6	0
1 - 55	0	021 00		027 00		036 00	
56 Blank	0	1 - 25	0	1 - 10	0	1 - 12	0
012 08							
1 - 29	0						

THIS PAGE INTENTIONALLY LEFT BLANK.

LIST OF TECHNICAL PUBLICATIONS DEFICIENCY REPORTS INCORPORATED**ORGANIZATIONAL MAINTENANCE****TESTING AND TROUBLESHOOTING****FUEL SYSTEM**

1. The TPDRs listed below have been incorporated in this issue.

IDENTIFICATION NUMBER/ QA SEQUENCE NUMBER	LOCATION
39783-99-0065	Previously Incorporated

THIS PAGE INTENTIONALLY LEFT BLANK.

ALPHABETICAL INDEX
ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
FUEL SYSTEM

Title	WP Number
CG Control System	
Troubleshooting	035 00
Troubleshooting	035 01
External Fuel System	
Component Locator	011 00
Testing - Pressure Switches	010 00
Testing - Refuel/Transfer	007 00
Troubleshooting - Refuel	008 00
Troubleshooting - Transfer	009 00
Fuel Dump System	022 02
Fuel Pressurization and Vent System	
Component Locator	023 00
Testing	021 00
Troubleshooting	022 00
Fuel Quantity Gaging and Low Level Warning System	
Component Locator - Fuel Quantity Gaging System	024 01
Component Locator - Fuel Low Level Warning System	024 02
Testing	024 00
Testing - Coupled Fuel Quantity Transmitters Capacitance	027 00
Testing - External Tank Fuel Quantity Transmitter Capacitance	034 00
Testing - Left Wing Fuel Quantity Transmitter Capacitance	032 00
Testing - Right Wing Fuel Quantity Transmitter Capacitance	033 00
Testing - Tank No. 1 Fuel Quantity Transmitters Capacitance	028 00
Testing - Tank No. 2 Fuel Quantity Transmitter Capacitance	029 00
Testing - Tank No. 3 Fuel Quantity Transmitter Capacitance	030 00
Testing - Tank No. 4 Fuel Quantity Transmitters Capacitance	031 00
Troubleshooting - Fuel Quantity Gaging System	025 00
Troubleshooting - Fuel Low Level Warning System	026 00
Troubleshooting - Fuel Low Level Warning System	026 01
Troubleshooting - Fuel Low Level Warning System	026 02
Hot Fuel Recirculation System	
Component Locator	017 00
Testing	015 00
Troubleshooting	016 00
Inflight Refueling System	
Component Locator	006 00
Testing	004 00
Troubleshooting	005 00

Title	WP Number
Internal Fuel Transfer and Engine Fuel Supply System	
Component Locator	014 00
Testing - Engine Fuel Shutoff	012 00
Testing - Internal Fuel Transfer, 161353 THRU 161761	012 00
Testing - Internal Fuel Transfer, 161924 AND UP	012 00
Testing - No. 1 Fuel Tank Transfer Test	012 00
Testing - No. 2 Fuel Tank Cycle Test	012 00
Testing - No. 3 Fuel Tank Cycle Test	012 00
Testing - No. 4 Fuel Tank Transfer Test	012 00
Testing - Transfer Leak Test	012 00
Testing - Turbine Boost Pump Test	012 00
Testing - Wing Fuel Transfer	018 00
Troubleshooting	013 00
Troubleshooting	013 01
Troubleshooting	013 02
Introduction	002 00
Diagrams	002 00
Effectivities	002 00
Illustrated Parts Breakdown	002 00
Manual Issue Date	002 00
Navy (AN) Standard/Common Name Nomenclature	002 00
Purpose	002 00
Quality Assurance Procedures	002 00
Record of Applicable Technical Directives	002 00
Requisitioning and Distribution of NAVAIR Technical Publications	002 00
Technical Directives	002 00
Technical Publications Deficiency Report (TPDR)	002 00
Test Procedures	002 00
Troubleshooting	002 00
Pressure Transducers	036 00
Refuel/Defuel System	
Component Locator	003 02
Testing	003 00
Troubleshooting	003 01
Scavenge Test, Vent Tank	021 00
Transducers, Pressure	036 00
Vent Tank Scavenge Test	021 00
Wing Fuel Transfer System	
Component Locator	020 00
Testing	018 00
Troubleshooting	019 00

INTRODUCTION**ORGANIZATIONAL MAINTENANCE****TESTING AND TROUBLESHOOTING****FUEL SYSTEM**

1. PURPOSE.

2. This manual provides the data required by the technician to do testing and troubleshooting of the system.

3. REQUISITIONING AND DISTRIBUTION OF NAVAIR TECHNICAL MANUALS.

4. Procedures to be used by Naval activities and other Department of Defense activities requiring NAVAIR technical manuals are defined in NAVAIR 00-25-100 and NAVAIRINST 5605.5A.

5. To automatically receive future changes and revisions to NAVAIR technical manuals, an activity must be established on the Automatic Distribution Requirements List (ADRL) maintained by the Naval Air Technical Data and Engineering Service Command (NATEC). To become established on the ADRL, notify your activity central technical publications librarian. If your activity does not have a library, you may establish your automatic distribution by contacting the Commanding Officer, NATEC, Attn: Distribution, NAS North Island, Bldg. 90, P.O. Box 357031, San Diego, CA 92135-7031. Annual reconfirmation of these requirements is necessary to remain on automatic distribution. Please use your NATEC assigned account number whenever referring to automatic distribution requirements.

6. If additional or replacement copies of this manual are required with no attendant changes in the ADRL, they may be ordered by submitting a MILSTRIP requisition in accordance with NAVSUP 485 to Routing Identifier Code "NFZ". MILSTRIP requisitions can be submitted through your supply office, Navy message, or SALTS to DAAS (Defense Automated Address System), or through the DAAS or NAVSUP web sites. For assistance with a MILSTRIP requisition, contact the Naval Inventory Control Point (NAVICP) Publications and Forms Customer Service at DSN 442-2626 or (215) 697-2626, Monday through Friday, 0700 to 1600 Eastern Time.

7. MANUAL ISSUE DATE.

8. The date on the title page is the copy freeze date. No additions, deletions, or changes are made after the manual issue date except last minute safety of flight or required maintenance changes. Data collected after the manual issue date will be included in later changes or revisions of the manual.

9. EFFECTIVITIES.

10. Effectivity notes on manual title pages, work package title pages, and within a work package indicate the aircraft or software program to which the data applies. If no effectivity note appears on the work package title page, the work package has the same effectivity as shown on the manual title page. The effectivity notes may use:

NOTE

Aircraft with model designator F/A-18B are the same type and model as TF/A-18A.

a. Type, model, and series.

b. Bureau number (tail number).

c. Combination of type, model, series, and bureau numbers.

d. Part number or serial number.

e. Technical directive number.

f. Configuration/identification number.

11. The table below shows examples of effectivity notes and their meanings:

Effectivity Note Examples

Effectivity Note	Definition
160777 AND UP	Applicable to all F/A-18A, F/A-18B, F/A-18C and F/A-18D for bureau numbers listed.
F/A-18A, F/A-18B	Applicable to all F/A-18A and F/A-18B.
F/A-18C, F/A-18D	Applicable to all F/A-18C and F/A-18D.
F/A-18A	Applicable to all F/A-18A, but not F/A-18B, F/A-18C and F/A-18D.
F/A-18B	Applicable to all F/A-18B, but not F/A-18A, F/A-18C, and F/A-18D.
F/A-18C	Applicable to all F/A-18C, but not F/A-18A, F/A-18B, and F/A-18D.
F/A-18D	Applicable to all F/A-18D, but not F/A-18A, F/A-18B, and F/A-18C.
F/A-18A, F/A-18C	Applicable to all F/A-18A and F/A-18C, but not to F/A-18B and F/A-18D.
F/A-18B, F/A-18D	Applicable to all F/A-18B and F/A-18D, but not to F/A-18A and F/A-18C.
F/A-18A 160775, 160777 THRU 160782	Only applicable to some bureau numbers of F/A-18A. Not applicable to any F/A-18B, even if an F/A-18B bureau number is within the numbers listed.
F/A-18C 163427, 163430 THRU 163456	Only applicable to some bureau numbers of F/A-18C. Not applicable to any F/A-18D, even if an F/A-18D bureau number is within the numbers listed.
F/A-18B 160784 AND UP	Only applicable to some bureau numbers of F/A-18B. Not applicable to any F/A-18A, even if an F/A-18A bureau number is within the numbers listed.
F/A-18D 163434 THRU 163457	Only applicable to some bureau numbers of F/A-18D. Not applicable to any F/A-18C, even if an F/A-18C bureau number is within the numbers listed.
160775 THRU 160785 BEFORE F/A-18 AFC 772	Applicable to F/A-18A and F/A-18B for bureau numbers listed, before modification by technical directive.
161213 AND UP; ALSO 160775 THRU 160785 AFTER F/A-18 AFC 772	Applicable to aircraft modified during production; also applicable when affected aircraft have been modified by technical directive.

Effectivity Note Examples (Continued)

Effectivity Note	Definition
160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-X IS INSTALLED	Applicable to F/A-18A and F/A-18B for bureau numbers listed if panel P/N XXXX-X is installed. (Configuration before AVC)
161213 AND UP; ALSO 160775 THRU 160785; WHEN NO. 2 CONTROL PANEL PIN XXXX-Y (AVC-102) IS INSTALLED	Applicable to aircraft modified during production; also applicable to aircraft components modified to the production configuration by technical directive. (Configuration after AVC)
P/N MBEU65101-9, MBEU65101-10 & MBEU65105-3	Applicable to assemblies which are interchangeable between aircraft.
ENGINE NO. 215101 THRU 215109	Applicable to assemblies which are interchangeable between aircraft, but configurations can not be identified by part number.
CONFIG/IDENT NUMBER 84A	The CONFIG/IDENT Number is the program load identification number which identifies the software program loaded in specific programmable units. Refer to A1-F18AC-SCM-000 for CONFIG/IDENT Number tables.

12. TECHNICAL DIRECTIVES.

13. Technical directives are documents which direct the accomplishment, and recording of a retrofit configuration or inspection to delivered aircraft, or aircraft components.

14. **AIRFRAME CHANGE (AFC) AND AIRBORNE TACTICAL SOFTWARE CHANGE (ASC).** Technical directives which change configuration of aircraft structure or equipment installation, i.e. AFC, will list aircraft bureau numbers in effectivity notes and show before and after the AFC. Technical directives which change configuration of operational flight programs (OFP), i.e. ASC, will list the OFP CONFIG/IDENT NUMBER in effectivity notes and show the latest two authorized OFP programs. See AFC and ASC effectivity examples in Effectivity Note Example Table.

15. **AIRCRAFT COMPONENT CHANGES.** Technical directives which change configuration of aircraft components, i.e. AAC, ACC, AVC, AYC, and PPC will list part numbers in the effectivities. See AVC effectivity examples in Effectivity Note Example table.

16. HISTORICAL RECORD/RECORD OF APPLICABLE TECHNICAL DIRECTIVES.

17. The technical directives affecting this manual are listed in the Record of Applicable Technical Directives of each affected work package. Because an ASC directs all aircraft be modified within 30 days, ASCs are not listed. When all

affected aircraft are modified, the before configuration is removed from the manual, and the technical directive entry is removed from the Record of Applicable Technical Directives and entered in the Historical Record of Applicable Technical Directives.

18. TECHNICAL PUBLICATIONS DEFICIENCY REPORT (TPDR).

19. The TPDR (OPNAV FORM 4790/66) is the form for reporting errors and suspected omissions in the technical manuals. Reporting procedures are in OPNAVINST 4790.2 SERIES.

20. QUALITY ASSURANCE PROCEDURES.

21. Procedures or parts of procedures which require quality assurance inspection are identified by the letters (QA) after the applicable steps. When (QA) is assigned to a step or a heading which is immediately followed by substeps, the inspection requirement is applicable to all substeps.

22. When doing maintenance in any area, a visual inspection of the area will be made for cracks, corrosion and security of component installation before securing the area for flight.

23. TEST PROCEDURES.

24. Test procedures are done as part of malfunction isolation, during periodic inspection, or when correct system operation is to be verified.

25. Satisfactory completion of test procedures verifies correct system operation. Do steps in sequence. When doing system test procedures, make sure:

- a. System Required Components identified in procedure are installed.
- b. Related Systems Required identified in procedure are operative.
- c. Steps are done in sequence.
- d. Results are as shown in Normal Indication column, or do Remedy for Abnormal Indication.
- e. Each malfunction is corrected before going to next step by repeating portion of test procedure which failed.

26. TROUBLESHOOTING.

27. **TROUBLESHOOTING PROCEDURES.** These procedures provide a series of steps with a NO-YES column. These steps lead to corrective action for the malfunction. Troubleshooting procedures list the data below for use as an aid when doing procedural steps:

- a. Reference to a system schematic.
- b. Reference to a component locator.
- c. List of support equipment and materials required which will always be used in the procedure. Additional support equipment may be required.
- d. An alphabetical list of components which could cause the malfunction.

28. Troubleshooting procedures (logic trees) are referenced from a test procedure Remedy for Abnormal Indication column or from Fault Reporting Manual. Logic trees are written assuming the logic below:

- a. If doing a test procedure, all steps testing functions before the failed step had normal indication.
- b. For an abnormal indication, only one malfunction exists.
- c. All replacement components are ready for installation.

29. **CONTINUITY TESTING.** When doing continuity tests during troubleshooting, the items listed below must be tested, as applicable.

- a. Loose electrical connectors and bent, broken, or recessed pins.
- b. Continuity between specific pins per procedural step or system schematic.
- c. Shorts between conductor and shield.
- d. Shorts between conductor and surrounding pins on connectors.
- e. Shield continuity per diagrams/system schematics.

30. **TROUBLESHOOTING BEYOND BIT/SYSTEM TESTING.** This is required when any of the conditions listed below exist:

- a. Malfunction was not detected by Built-In Test (BIT).
- b. Malfunction was not detected by a functional test procedure.
- c. When a troubleshooting procedure did not correct the malfunction.
- d. When a troubleshooting procedure does not exist.

31. When any of the conditions listed in paragraph 28 exist, troubleshooting procedure/logic must then be determined. Use steps listed below to aid in determining procedure/logic:

a. Use referenced system schematic or select applicable system schematic for malfunction. Use schematic for troubleshooting beyond BIT analysis as listed below:

(1) Analyze interface of system components. Determine logic wiring and/or components which may cause the malfunction. Determine when an interfacing component could cause the malfunction.

(2) When malfunction can be caused by mission computer system signal interface, do applicable steps below:

(a) Analyze mission computer system integrated functions. Use REF CODES on system schematics for aid when interpreting computer software logic (A1-F18A()-OLD-() series manuals).

(b) Memory inspect suspected Input/Output REF CODES (A1-F18AC-FIM-100).

b. Review VIDS/MAF (OPNAV 4790/60) in Aircraft Discrepancy Book for related malfunctions.

(1) Analyze system/related system maintenance codes reported by Nose Wheelwell Digital Display Indicator.

(2) Determine if aircraft components that have been replaced could cause malfunction.

(3) When a repeat malfunction exists, analyze previous maintenance action completed for the malfunction.

(a) When component replacement is/was done, analyze component history as listed:

1) Determine where component came from.

2) Determine previous history of component (when available).

3) Determine if similar malfunction occurred on another aircraft.

4) Determine if replaced component could be causing existing malfunction.

5) Determine if replacing component again would correct malfunction.

(b) Determine if any rigging or control procedures that have been done could cause the malfunction.

(c) Determine when rigging/boresight procedures should be done to verify system operation for malfunction.

32. **TROUBLESHOOTING IMPROVEMENTS.** When a troubleshooting procedure did not correct a malfunction and it is determined that additional or new troubleshooting is required, submit Technical Publications Deficiency Report (TPDR) providing the information listed below:

- a. Fault descriptor for A1-F18()-FRM-000.
- b. Corrective action taken for malfunction.
- c. Logic used to isolate malfunction.
- d. Probable changes that could shorten troubleshooting time for malfunction.

33. **DIAGRAMS.**

34. System schematics are in A1-F18A()-()-500 series manuals.

35. **ILLUSTRATED PARTS BREAKDOWN.**

36. Each illustrated parts breakdown (IPB) in this manual has a parts list and illustration for the requisition, storage, authority for use and identification of parts. The illustration is integrated with, and supports, both the maintenance procedure and the parts list within each work package.

37. **PART NUMBER COLUMN.** Footnote symbols in the part number column are defined following the last part listed in each parts list (also see converted part numbers, this WP).

38. **INDENTION.** The first entry in the description column of each parts list is the figure title. This figure title identifies the parts list with the related maintenance procedure and is shown in the first indent. All parts data required to support the specific maintenance procedure is below the figure title in the second indent.

39. **COMMON NAMES.** The official nomenclature in the description column may not be the name commonly used for an item. If different from the official nomenclature, the common name is shown in parentheses in the description column immediately following the official nomenclature.

40. **COMMERCIAL AND GOVERNMENT ENTITY CODES.** Entity code or manufacturer's name and address are shown in the Description column in parentheses after the nomenclature for the item. These codes are per the Commercial and Government Entity (CAGE) Handbook H4/H8 Series. No code indicates the item is a government standard part.

41. **ATTACHING PARTS.** Attaching parts are identified by (AP) after the nomenclature of the item in the description column. Attaching parts are listed immediately following the part they attach.

42. **SPECIAL HANDLING.** Items requiring special handling such as liquid oxygen components, magnetic control items or on-board oxygen generating system (OBOGS) are identified by the acronym LOX for liquid oxygen, MAG for magnetic control and OXYGEN for on-board oxygen generating system (OBOGS) in the Description column, at the extreme right side.

43. **CONVERTED PART NUMBERS.** Some part numbers appear in the Part Number column which are different than the manufacturer's part number. These are converted part numbers. The unconverted manufacturer's part number is shown in the Description column following the manufacturer's code. Always use the part number in the Part Number column when ordering parts. If an item is not available under the listing in the Part Number column, it may be ordered using the unconverted part number found in the Description column or by using the number found on the part. Examples of special characters as they may appear in the Part Number and Description columns are shown below:

Part Number Column	Description Column
PORM	+ (Plus or Minus)
DEG	° (Degree)
E	e (Lower case letter)
2	II (Roman Numeral)
0.001	.001 (Decimal)

44. **SUPERSEDED PARTS.** Superseded part numbers have been removed from the Part Number column and placed in the Description column of the superseding part (for example - supersedes 74A582090-1003). This indicates that the superseded part is usable if available through salvage, but should not be requisitioned or made.

45. **NEXT HIGHER ASSEMBLY.** Next higher assembly (NHA) data is not shown using indentation. Next higher procurable assembly (NHPA) data is shown for part numbers that have a procurable NHA. The NHPA and its assigned Source, Maintenance and Recoverability (SM&R) code are in parentheses as the last entry in the Description column. Requisition the NHPA when the part listed in the Part Number column is not available from supply. The components of assemblies that required disassembly during removal from aircraft, are footnoted in the part number column.

46. **UNITS PER ASSEMBLY COLUMN (UPA).** This column lists the total number of each part required

per assembly or subassembly and are not necessarily the total number used in the end item of equipment. The letters AR (As Required) are used for items such as shims when the requirement may vary.

47. **USABLE-ON CODES.** Applicable usable-on codes are identified on the final sheet of each parts list. No entry in the Use On column indicates parts are applicable to all configurations supported by this parts list.

48. **ALTERNATE OR EQUIVALENT PARTS.** An asterisk (*), in the Use On column, identifies alternate parts or equivalent parts that are interchangeable. When a letter code is followed by an asterisk in the Use On column, only the parts with the same letter code are interchangeable. An alternate part may be used when preferred part is not available. The asterisk is omitted for the preferred part(s). Equivalent parts are fully interchangeable. No equivalent part is preferred over another. All equivalent parts are identified by asterisks.

49. **SOURCE, MAINTENANCE AND RECOVERABILITY (SM&R) CODE COLUMN.** The codes used in this column are assigned per NAVAIRINST 4423.3 SERIES and NAVSUPINST 4423.14 SERIES which contain definitions. A dash (–) is shown in the SM&R code column when no code has been assigned. The Aviation Supply Office P2300 series publication is to be used for the most current SM&R Code assignment information if doubt exists as to the validity of any SM&R Code listed in an IPB. Refer to figure 1 for SM&R code explanations.

50. **PARTS LIST INDEX MANUAL, A1-F18AC-IPB-450.** This manual has a numerical index of part numbers and a reference designation index for use with aircraft organizational maintenance manuals. When reference designations or part numbers are known, the index locates specific maintenance instructions and parts data.

51. **NAVY (AN) STANDARD/COMMON NAME NOMENCLATURE.**

52. When an item has both Navy (AN) standard and common name nomenclature assigned, the common name nomenclature will be used in text and on illustrations. Full Navy (AN) standard nomenclature will be used in the Illustrated Parts Breakdown (IPB).

SOURCE (D012)				MAINTENANCE			
1st POSITION		2nd POSITION		3rd POSITION		4th POSITION	
P	PROCURE	A	REPLENISH	O	REPLACE OR USE AT ORGANIZATIONAL LEVEL	Z	NO REPAIR (CONSUMABLE)
		B	INSURANCE				
		C	CURE-DATED				
		D	INITIAL	F	REPLACE OR USE AT IMA LEVEL	B	RECONDITION BY ADJUSTMENT, CALIBRATION, LUBRICATION, PLATING, ETC.
		E	END ITEM GSE/STOCKED	H			
		F	GSE/NOT STOCKED	G			
K	REPAIR KIT COMPONENT	F	ORG/IMA	L	REPLACE OR USE AT SPECIALIZED IMA	O	REPAIR AT ORGANIZATIONAL LEVEL
		D	DEPOT				
		B	BOTH KITS				
M A	MANUFACTURE ASSEMBLE	O	ORGANIZATIONAL	D	REPLACE OR USE AT DEPOT	F	REPAIR AT IMA LEVEL
		F	AFLOAT (INTERMEDIATE)			H	
		H	ASHORE (INTERMEDIATE)			G	
		G	BOTH (INTERMEDIATE)				REPAIR AT SPECIALIZED IMA
X	MISC	D	DEPOT	Z	NOT REQUIRED THIS APPLICATION	L	
		A	REQUEST NHA			D	REPAIR AT DEPOT OR COMMERCIAL
		B	OBTAIN FROM SALVAGE OR ONE TIME BUY				
		C	DIAGRAMS-SCHEMATICS, INSTALL DWGS				

RECOVERABILITY (D013C)		SERVICE OPTION (D012A)	
5th POSITION		6th POSITION	
O	REPAIRABLE ITEM. CONDEMN AT ORGANIZATIONAL LEVEL.	1	APPLIES TO ENGINES ONLY. IDENTIFIES THE HIGHEST (1) TO LOWEST (3) LEVEL OF MAINTENANCE WHICH CAN REPLACE (3rd POSITION OF SM&R CODE) THE ITEM.
		2	
		3	
F H G	REPAIRABLE ITEM. CONDEMN AT INTERMEDIATE LEVEL INDICATED.	4	SAME AS ABOVE. IN ADDITION, ITEM IS A FLR WITH A UNIT COST OF OVER \$5000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.
		5	
		7	
L	REPAIRABLE ITEM. CONDEMN AT SPECIALIZED INTERMEDIATE LEVEL.	6	NORMALLY PROCURED AND STOCK NUMBERED BUT ORGANIC CAPABILITY EXISTS FOR EMERGENCY STOP-GAP REQUIREMENTS.
		E	END-TO-END TEST REQUIRED BY IMA PRIOR TO BCM ACTION.
D	REPAIRABLE ITEM. CONDEMN AT DEPOT OR CONTRACTOR FACILITY.	J	FLR OR CONSUMABLE ITEM. CHANGE 5th POSITION SM&R CODE TO "D" UNDER PICA/SICA. NAVAIR APPROVAL REQUIRED.
		8	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 2nd LEVEL OF IMA.
A	SPECIAL HANDLING REQUIRED. CONTACT ITEM MANAGER FOR DISPOSAL INSTRUCTIONS	9	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 3rd LEVEL OF IMA.
		M	ITEM IS A FLR WITH A UNIT COST OF OVER \$5000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.
Z	NON-REPAIRABLE ITEM. CONDEMN AT LEVEL IN 3rd POSITION.	N	ASSIGNED TO XB SOURCE CODE AND INDICATES ITEM IS PROCURED LOCALLY. NOT STOCKED IN THE SUPPLY SYSTEM.
		T	ASSIGNED TO TRAINING DEVICES WITH SOURCE CODE OF "PD". INDICATES ITEM IS NOT A PROCURABLE SPARE. NSN IS ASSIGNED ONLY TO PERMIT VISIBILITY OF REPAIR PART RELATIONSHIP.

Figure 1. SM&R Code Explanation

THIS PAGE INTENTIONALLY LEFT BLANK.

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST
REFUEL/DEFUEL SYSTEM**

Reference Material

Line Maintenance Procedures	A1-F18AC-LMM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Defuel System Test, Table 3	7
Fuel System Test Set Controls and Displays, Figure 2	11
Fuel System Test Set Hookup, Figure 1	10
Refuel Scavenge Test, Table 1	1
Refuel/Defuel System Pressure Test (Internal Tanks), Table 2	4

Record of Applicable Technical Directives

None

Table 1. Refuel Scavenge Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Hydraulic System		
Power Plant and Related Systems		
Secondary Power System		
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1001	Fuel System Test Set	
74D460108-1003	Fuel System Test Set	
—	External Electrical Power Source	

Table 1. Refuel Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">Materials Required</p> <p style="text-align: center;">None</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this test.</p> <p style="text-align: center;">For component location, refer to WP003 02</p> <p>1. PREPARATION.</p> <p style="padding-left: 40px;">a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p style="padding-left: 40px;">b. Hookup fuel test set cable 74D462025-1003 (fig 1) per substeps below:</p> <p style="padding-left: 80px;">(1) On fuel system test set, remove J1 protective cap.</p> <p style="padding-left: 80px;">(2) Connect cable P1 to J1 on test set.</p> <p style="padding-left: 80px;">(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p style="padding-left: 80px;">(4) Position test set near right wing tip.</p> <p style="padding-left: 80px;">(5) Set switches on fuel system test set as listed below:</p> <p style="padding-left: 40px;">S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL</p> <p style="padding-left: 40px;">CB1 - open D3 FUEL INDICATOR - Selector knob to FEED</p>		

Table 1. Refuel Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(6) On 74D460108-1003 test set, set switches as listed below:</p> <p>S12 - OFF S13 - NORM S14 - ON S15 - OFF</p> <p>c. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>d. On test set, close CB1 ACFT PWR circuit breaker.</p> <p>e. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>2. TRANSDUCER CHANNEL BIT. (QA)</p> <p>a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.</p> <p>b. Set switch S9 to SCALE and hold.</p> <p>c. Release switch S9.</p> <p>3. TRANSDUCER NULL. (QA)</p>	<p>D1 and D2 display all minus signs.</p> <p>D2 displays 0000 ±00.1.</p> <p>D2 displays 25 to 35 PSI.</p>	<p>Do table 13, WP003 01.</p> <p>Do table 13, WP003 01.</p> <p>Do table 13, WP003 01.</p>
<p style="text-align: center;">NOTE</p> <p>Only the REFUEL SCAV pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs, all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
<p>a. Set switch S2 to REFUEL SCAV. Record D2 display (non-nulled).</p> <p>b. Set switch S9 to NULL and release.</p>	<p>D2 displays 0.00.</p>	<p>Do table 7, WP036 00.</p>

Table 1. Refuel Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>4. TEST.</p> <p>a. Do substeps below:</p> <p>(1) On test set, monitor D2.</p> <p>(2) Refuel aircraft (A1-F18AC-PCM-000) for approximately 30 seconds.</p> <p>b. Do substeps below:</p> <p>(1) On test set, monitor D2.</p> <p>(2) Operate APU in ground maintenance mode, left AMAD only or left engine at ground IDLE (A1-F18AC-LMM-000).</p> <p>c. Shut down APU or engine (A1-F18AC-LMM-000).</p> <p>5. FINAL.</p> <p>a. Remove external electrical power (A1-F18AC-LMM-000).</p> <p>b. Disconnect fuel system test set.</p> <p>c. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM-010).</p>	<p>D2 displays 0.00 (verifies scavenge control valve closed when refuel pressure is applied).</p> <p>D2 displays a negative indication. Negative indication will decrease as refueling manifold is scavenged.</p>	<p>Replace scavenge control valve (A1-F18AC-460-300, WP065 00).</p> <p>Do table 11, WP003 01.</p>

Table 2. Refuel/Defuel System Pressure Test (Internal Tanks)

<p>System Required Components</p> <p>All system components installed.</p> <p>Related Systems Required</p> <p>Electrical System</p> <p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p>
--

Table 2. Refuel/Defuel System Pressure Test (Internal Tanks) (Continued)


NOTE		
<p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) and Fuel Qty Vertical Scale Display (figure 1, WP003 01) may be used while doing this test.</p> <p>For component location, refer to WP003 02 and WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <ul style="list-style-type: none"> Aircraft Piping Automatic Drain Valve (tank 4) Defuel Valve No. 1 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve No. 2 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve No. 3 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve No. 4 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve Scavenge Control Valve Wing High Level Refuel/Defuel Pilot Valve Wing Low Level Refuel/Defuel Pilot Valve Wing Refuel/Defuel Shutoff Valve Wing Transfer Jet Ejector 		
Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to aircraft structure, the tank pressure/fuel flow indicator (door 8) must be continually monitored during this test. If the tank pressure indicator shows red, refueling pressure must be stopped.</p> <p style="text-align: center;">NOTE</p> <p>When doing this test, the FUEL QTY indicator is monitored to determine which tank is not prechecking (is continuing to fill). The time involved is not critical. One minute is used as a starting point for taking baseline readings and is not a system acceptance/rejection value. Refueling pressure is left on an additional 30 minutes to determine which tank is continuing to accept fuel.</p> <p>After refueling is started, the FUEL QTY indicator must be monitored in the settings listed below:</p> <ul style="list-style-type: none"> (1) FEED - No. 2 fuel tank (LEFT counter) No. 3 fuel tank (RIGHT counter) (2) TRANS - No. 1 fuel tank (LEFT counter) No. 4 fuel tank (RIGHT counter) (3) INTR - Left wing fuel tank (LEFT counter) WING Right wing fuel tank (Right counter) 		

Table 2. Refuel/Defuel System Pressure Test (Internal Tanks) (Continued)

Procedure	No	Yes
<p>a. Do substeps below: (QA)</p> <p>(1) Defuel aircraft (A1-F18AC-PCM-000). If this test is being done to troubleshoot an aircraft that does not defuel, do alternate defueling procedure (A1-F18AC-PCM-000).</p> <p>(2) Drain vent tank into fuel container.</p> <p>(3) If external fuel tanks are installed; on FUEL system control panel, set the EXT TANKS WING and CTR switches to STOP.</p> <p>(4) On cockpit EXT LT control panel assembly, make sure the INTR WING switch is set to NORM.</p> <p>(5) Move master precheck handle to UP PRECHECK (door 8).</p> <p>(6) Remove doors 141L and 141R (A1-F18AC-LMM-010).</p> <p>(7) Start refueling using electrical power (A1-F18AC-PCM-000). Allow 1 minute of refueling for valves to close.</p>		
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Substep below is required to close tank 2 and tank 3 gravity feed check valves. This prevents fuel migration from tank 2 to tank 1 and from tank 3 to tank 4.</p>		
<p>(8) On individual tank precheck valve (doors 141L/R), pull T2 and T3 handles down (tanks 2 and 3 start filling). When tank 2 fills to approximately 550 lb, push T2 handle up. When tank 3 fills to approximately 550 lb, push T3 handle up.</p> <p>(9) On individual tank precheck valve (doors 141L/R), pull T1 and T4 handles down (tanks 1 and 4 start filling). When tank 1 fills to approximately 200 lb, push T1 handle up. When tank 4 fills to approximately 200 lb, push T4 handle up.</p> <p>(10) Record each internal fuel tank amount (test starting amounts).</p>		
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Monitoring fuel quantity is important in determining if tank 2 or tank 3 is filling at a faster rate. Malfunction exists in the tank with the fastest filling rate.</p>		
<p>(11) Maintain refuel pressure for 30 minutes.</p> <p>(12) Record each internal fuel tank amount again (test completion amounts).</p> <p>(13) Turn off fuel servicing equipment.</p> <p>(14) Subtract internal fuel tank test starting amounts from test completion amounts.</p> <p>(15) Did a wing fuel tank amount increase more than 200 lb?</p>	b	c
b. Did tank 1 fuel amount increase more than 200 lb?	d	e

Table 2. Refuel/Defuel System Pressure Test (Internal Tanks) (Continued)

Procedure	No	Yes
c. If a wing transfer malfunction exists and the wing tank did not precheck, replace wing transfer jet ejector (A1-F18AC-460-300, WP124 00). If a wing transfer problem does not exist, do table 1, WP003 01.	-	-
d. Did tank 2 fuel amount increase more than 100 lb?	f	g
e. Do table 2, WP003 01.	-	-
f. Did tank 3 fuel amount increase more than 100 lb?	h	i
g. Do table 3, WP003 01.	-	-
h. Did tank 4 fuel amount increase more than 200 lb?	j	k
i. Do table 4, WP003 01.	-	-
j. Do substeps listed below:		
(1) Make sure the master precheck valve handle is in the DOWN OFF position.		
(2) Disconnect fuel servicing equipment.		
(3) Close door 8 (A1-F18AC-LMM-010).		
(4) Install doors 141L and 141R (A1-F18AC-LMM-010).		
(5) On FUEL system control panel, set the EXT TANKS WING and CTR switches to NORM.		
(6) Disconnect external electrical power (A1-F18AC-LMM-000).	-	-
k. Do table 5, WP003 01.	-	-

Table 3. Defuel System Test

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">System Required Components</p> <p align="center">All system components installed.</p> <p align="center">Related Systems Required</p> <p align="center">Electrical System</p> <p align="center">Support Equipment Required</p> <p align="center"> Part Number or Type Designation Nomenclature </p> <p align="center"> External Electrical Power Source </p>		

Table 3. Defuel System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this test.</p> <p>For component locations refer to WP003 02.</p>		
1. TEST. (QA)		
a. Turn on external electrical power (A1-F18AC-LMM-000).		
<p align="center">Note</p> <p>When doing this test, the FUEL QTY indicator is monitored during defueling procedure.</p> <p>Before starting test, the internal fuel tank amounts must be recorded.</p>		
b. Observe cockpit FUEL QTY indicator and record fuel amounts in settings listed below:		
FEED - No. 2 fuel tank (LEFT counter) No. 3 fuel tank (RIGHT counter)		
TRANS - No. 1 fuel tank (LEFT counter) No. 4 fuel tank (RIGHT counter)		
INTR - Left wing fuel tank (LEFT counter) WING - Right wing fuel tank (RIGHT counter)		
c. Start defueling (A1-F18AC-PCM-000).	1. Defueling hose not collapsed.	Replace collapsed defueling hose.
	2. Suction pressure is -3 psi.	Adjust suction pressure.
	3. Fuselage tanks and wing fuel tanks decreasing from initial fuel amounts.	Do table 12, WP003 01.
d. Continue defueling until defuel shutdown. Observe FUEL QTY indicator.	FUEL QTY indicator shows TOTAL LBS less than 700.	Do table 12, WP003 01.

Table 3. Defuel System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>e. Do substeps below:</p> <p>(1) Shut down defueling equipment.</p> <p>(2) Turn off and disconnect external electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect defueling nozzle (A1-F18AC-PCM-000).</p> <p>(4) Install ground refueling receptacle cap (A1-F18AC-PCM-000).</p> <p>(5) Remove aircraft static ground wiring (A1-F18AC-LMM-010).</p> <p>(6) Close door 8 (A1-F18AC-LMM-010).</p>		

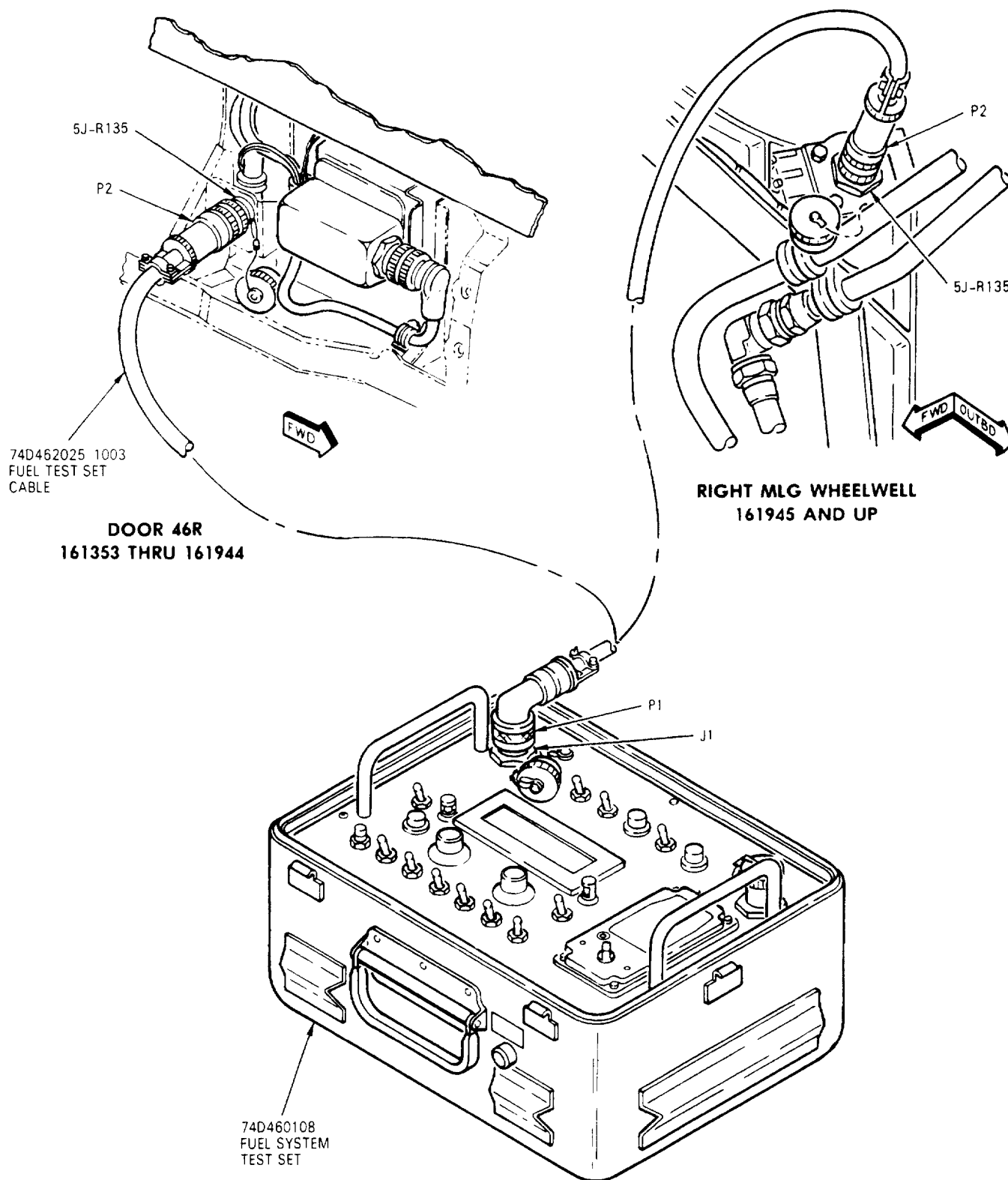
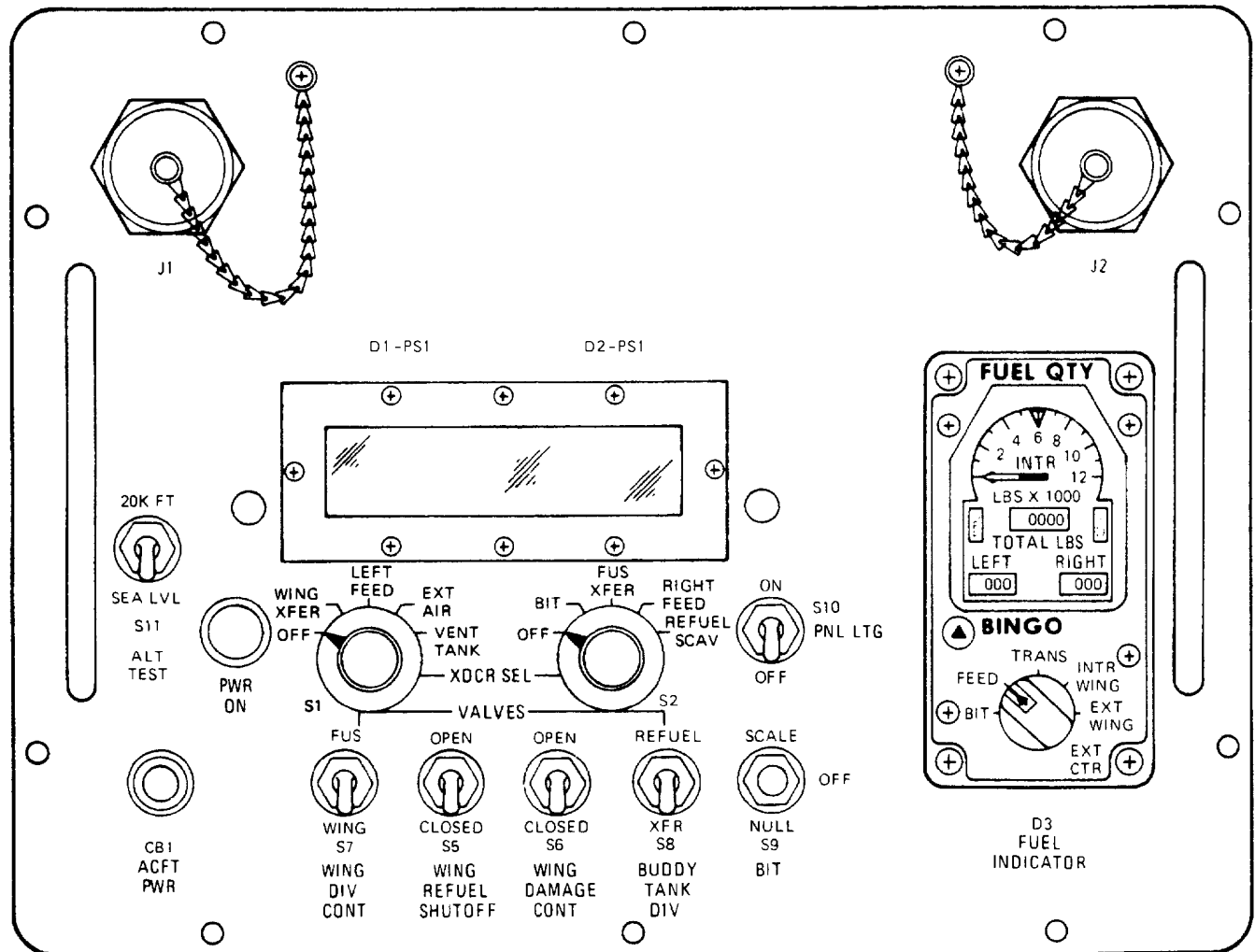


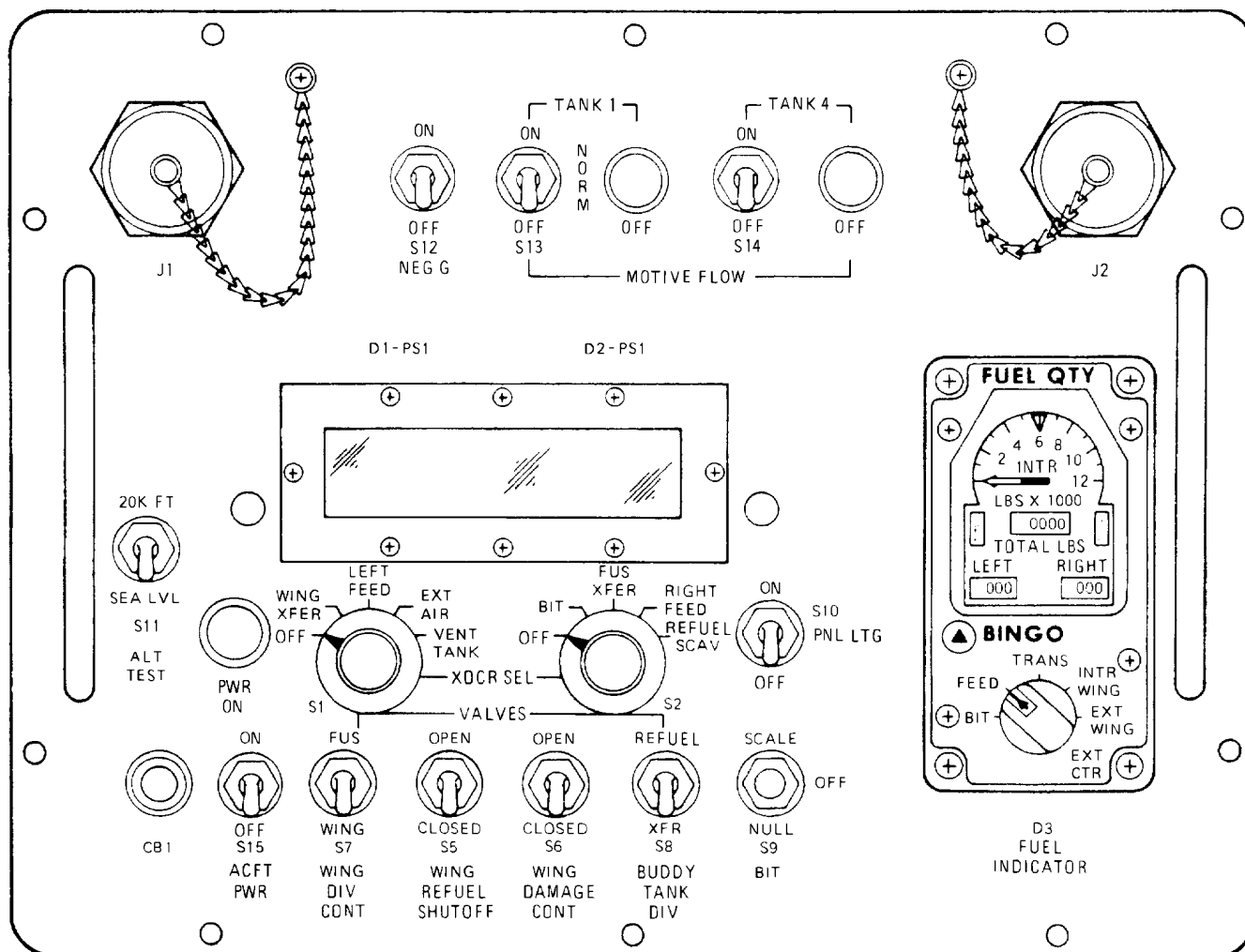
Figure 1. Fuel System Test Set Hookup



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 2. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 2. Fuel System Test Set Controls and Displays (Sheet 2)

00300202

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
REFUEL/DEFUEL SYSTEM

Reference Material

Line Maintenance Procedures	A1-F18AC-LMM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Aircraft Does Not Defuel, Table 12	20
Fuel Qty Vertical Scale Display, Figure 1	23
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 11	47
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 8	40
Fuel System Test Set Controls and Displays, Figure 9	42
Individual Fuel Tank High Level Shutoff Test Component Locator, Figure 10	44
Individual Fuel Tank High Level Shutoff Test, Table 6	7
No. 1 Fuel Tank Did Not Precheck, Table 2	4
No. 2 Fuel Tank Did Not Precheck, Table 3	5
No. 3 Fuel Tank Did Not Precheck, Table 4	6
No. 4 Fuel Tank Did Not Precheck, Table 5	6
No. 1 Fuel Tank Failed High Level Shutoff, Table 7	15
No. 2 Fuel Tank Failed High Level Shutoff, Table 8	16
No. 3 Fuel Tank Failed High Level Shutoff, Table 9	17
No. 4 Fuel Tank Failed High Level Shutoff, Table 10	18
No. 1 Fuel Tank Troubleshooting Component Locator, Figure 2	24
No. 2 Fuel Tank Troubleshooting Component Locator, Figure 3	25
No. 3 Fuel Tank Troubleshooting Component Locator, Figure 4	27
No. 4 Fuel Tank Troubleshooting Component Locator, Figure 5	30
Refuel/Defuel System Pressure Test (Internal Tanks), Figure 7	32
Refuel Manifold Does Not Scavenge, Table 11	19
Refuel Scavenge Test Troubleshooting Component Locator, Figure 6	31
Wing Fuel Tank Did Not Precheck, Table 1	2
Wrong Test Set Indications, Table 13	22

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Jul 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Fuel Tanks 2 and 3 (ECP MDA-F/A-18-00077/C1/C2)	1 Jun 86	—

Table 1. Wing Fuel Tank Did Not Precheck

Support Equipment Required None		
Materials Required None		
NOTE Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure. For component locations refer to WP003 02 and WP014 00.		
Malfunction is caused by one of the items listed below: Aircraft Piping Individual Tank Precheck Valve Left/Right Wing Fuel Coupling Valve Wing High Level Refuel/Defuel Pilot Valve Wing Low Level Refuel/Defuel Pilot Valve Wing Refuel/Defuel Shutoff Valve Wing Transfer Jet Ejector		
Procedure	No	Yes
a. Are B-nuts on the wing high level refuel/defuel pilot valve, the wing refuel/defuel shutoff valve and the wing low level refuel/defuel pilot valve tight?	c	b
b. Is there foreign object damage to the wing high level refuel/defuel pilot valve or the wing low level refuel/defuel pilot valve?	e	d
c. Do substeps below:		
(1) Tighten loose B-nuts.		
(2) Do table 2, WP003 00 again.		

Table 1. Wing Fuel Tank Did Not Precheck (Continued)

Procedure	No	Yes
(3) Does wing tank still fail precheck?	f	b
d. Do substeps below:		
(1) Replace wing high level refuel/defuel pilot valve (A1-F18AC-460-300, WP062 00) or wing low level refuel/defuel pilot valve (A1-F18AC-460-300, WP063 00).		
(2) Do table 2, WP003 00 again.		
(3) Does wing tank still fail precheck?	f	i
e. Replace the wing high level refuel/defuel pilot valve (A1-F18AC-460-300, WP062 00), wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP061 00) and wing low level refuel/defuel pilot valve. (A1-F18AC-460-300, WP063 00). Do table 2, WP003 00 again. Does wing tank still fail precheck?	f	g
f. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Make sure master precheck valve handle is in DOWN OFF position.		
(3) Disconnect fuel servicing equipment.		
(4) Close door 8 (A1-F18AC-LMM-010).	-	-
g. Do substeps below:		
(1) On 161353 THRU 161944, do substeps below:		
(a) Remove wing fuel coupling valve (A1-F18AC-460-300, WP102 00).		
(b) Visually inspect butt weld located approximately 1.3 inches above mounting flange in housing assembly.		
(c) If weld is cracked, return aircraft to next level of maintenance for repair. If weld is not cracked, replace wing transfer jet ejector (A1-F18AC-460-300, WP124 00).		
(2) On 161945, replace wing transfer jet ejector (A1-F18AC-460-300, WP124 00).		
(3) Does wing tank still fail precheck?	f	h
h. Isolate and replace defective piping between individual tank precheck valve and wing high level refuel/defuel pilot valve (A1-F18AC-PIM-000) If piping is good and symptom remains, replace individual tank precheck valve (A1-F18AC-460-300, WP048 00).	-	-

Table 1. Wing Fuel Tank Did Not Precheck (Continued)

Procedure	No	Yes
i. Do substeps below:		
(1) Replace wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP061 00), wing high level refuel/defuel pilot valve (A1-F18AC-460-300, WP062 00) (if not previously replaced in this procedure) and wing low level refuel/defuel pilot valve (A1-F18AC-460-300, WP063 00) (if not previously replaced in this procedure).		
(2) Do table 2, WP003 00 again.		
(3) Does wing tank still fail precheck?	f	g

Table 2. No. 1 Fuel Tank Did Not Precheck

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p align="center">For component locations, refer to figure 2.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Piping Individual Tank Precheck Valve No. 1 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve</p>		
Procedure	No	Yes
a. Replace no. 1 fuel tank fuel level control shutoff valve and high level pilot valve (A1-F18AC-460-300, WP057 00). Do table 2, WP003 00 again. Did no. 1 fuel tank precheck?	c	b
b. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Make sure master precheck valve handle is in DOWN OFF position.		
(3) Disconnect fuel servicing equipment.		
(4) Close door 8 (A1-F18AC-LMM-010).	-	-
c. Isolate and replace defective piping between individual tank precheck valve and tank no. 1 high level pilot valve (A1-F18AC-PIM-000). If piping is good and symptom remains, replace individual tank precheck valve (A1-F18AC-460-300, WP048 00).	-	-

Table 3. No. 2 Fuel Tank Did Not Precheck

Support Equipment Required		
None		
Materials Required		
None		
NOTE		
<p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>For component locations, refer to WP003 02.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Piping Individual Tank Precheck Valve No. 2 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve Scavenge Control Valve</p>		
Procedure	No	Yes
a. Replace no. 2 fuel tank fuel level control shutoff valve and high level pilot valve (A1-F18AC-460-300, WP058 00) and do table 2, WP003 00 again. Did no. 2 fuel tank precheck?	c	b
b. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Make sure master precheck valve handle is in DOWN OFF position.		
(3) Disconnect fuel servicing equipment.		
(4) Close door 8 (A1-F18AC-LMM-010).	-	-
c. Replace scavenge control valve (A1-F18AC-460-300, WP065 00) and do table 2, WP003 00 again. Did no. 2 fuel tank precheck?	d	b
d. Isolate and replace defective piping between individual tank precheck valve and tank no. 2 high level pilot valve (A1-F18AC-PIM-000). If piping is good and symptom remains, replace individual tank precheck valve (A1-F18AC-460-300, WP048 00).	-	-

Table 4. No. 3 Fuel Tank Did Not Precheck

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>For component locations, refer to WP003 02.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Piping Defuel Valve Individual Tank Precheck Valve No. 3 Fuel Tank Fuel Level Control Shutoff Valve and High Level Pilot Valve</p>		
Procedure	No	Yes
a. Replace no. 3 fuel tank fuel level control shutoff valve and high level pilot valve (A1-F18AC-460-300, WP059 00) and do table 2, WP003 00 again. Did no. 3 fuel tank precheck?	c	b
b. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Make sure master precheck valve handle is in DOWN OFF position.		
(3) Disconnect fuel servicing equipment.		
(4) Close door 8 (A1-F18AC-LMM-010).	-	-
c. Replace defuel valve (A1-F18AC-460-300, WP056 00) and do table 2, WP003 00 again. Did no. 3 fuel tank precheck?	d	b
d. Isolate and replace defective piping between individual tank precheck valve and tank no. 3 high level pilot valve (A1-F18AC-PIM-000). If piping is good and symptom remains, replace individual tank precheck valve (A1-F18AC-460-300, WP048 00).	-	-

Table 5. No. 4 Fuel Tank Did Not Precheck

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p>

Table 5. No. 4 Fuel Tank Did Not Precheck (Continued)

NOTE		
<p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>For component locations, refer to figures 5 and 7.</p> <p>Malfunction is caused by one of the items listed below:</p>		
Procedure	No	Yes
a. Inspect no. 4 fuel tank refuel manifold (manifold is between 5VAP569 fuel level control shutoff valve and 5VAP577 refuel/transfer check valve; 5VAP568 automatic drain valve is attached to manifold). Refer to Figure 5 for component location. Is manifold cracked?	b	c
b. Replace no. 4 fuel tank fuel level control shutoff valve, high level pilot valve (A1-F18AC-460-300, WP060 00) and automatic drain valve (A1-F18AC-460-300, WP055 00). Do table 2, WP003 00 again. Did no. 4 fuel tank precheck?	e	d
c. Replace no. 4 fuel tank refuel manifold (A1-F18AC-460-300, WP028 00).	-	-
d. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Make sure master precheck valve handle is in DOWN OFF position.		
(3) Disconnect fuel servicing equipment.		
(4) Close door 8 (A1-F18AC-LMM-010).	-	-
e. Isolate and replace defective piping between individual tank precheck valve and tank no. 4 high level pilot valve (A1-F18AC-PIM-000).	-	-

Table 6. Individual Fuel Tank High Level Shutoff Test

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>System Required Components</p> <p>All system components installed.</p> <p>Related Systems Required</p> <p>Electrical System</p>		

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1001	Fuel System Test Set	
74D460108-1003	Fuel System Test Set	
—	External Electrical Power Source	
Materials Required		
None		
NOTE		
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this test.		
For component locations, refer to figure 10.		
1. FUEL SYSTEM TEST SET HOOKUP. a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010). b. Hookup fuel test set cable 74D462025-1003 per substeps below: (1) On fuel system test set, remove J1 protective cap (fig 8). (2) Connect test cable P1 to J1 on test set. (3) Connect test cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).		

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.</p> <p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per sub-steps below:</p> <p style="padding-left: 40px;">(1) Open door 14R (A1-F18AC-LMM-010).</p> <p style="padding-left: 40px;">(2) On fuel system test set, remove J2 protective cap (fig 11).</p> <p style="padding-left: 40px;">(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p style="padding-left: 40px;">(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p style="padding-left: 40px;">(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p style="padding-left: 40px;">(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p style="padding-left: 40px;">(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p style="padding-left: 40px;">(1) On fuel system test set, remove J2 protective cap (fig 8).</p> <p style="padding-left: 40px;">(2) Connect test cable P1 to J2 on test set (fig 8).</p>		

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p>		
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">To prevent a 8 gpm leak through the wing damage shutoff valve, switch S6 on test set must be set to OPEN.</p>		
<p>e. On fuel system test set (fig 9, detail A), set switches as listed below:</p> <p>S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICATOR - Selector knob to FEED</p> <p>f. On 74D460108-1003 fuel system test set (fig 9, detail B), set switches as listed below:</p> <p>S12 - OFF S13 - NORM S14 - ON S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>h. Apply external electrical power (A1-F18AC-LMM-000).</p> <p>i. On fuel system test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p>	<p>Replace test set.</p> <p>Replace test box.</p> <p>Replace test set.</p>

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle. m. Release D3 FUEL INDICATOR selector knob.	Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. RIGHT counter moves to 550 to 650 lb. TOTAL counter moves 5800 to 6200 lb. INTR needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.	Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gauging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.
2. TRANSDUCER CHANNEL BIT. (QA)	Selector knob returns to FEED, LEFT, RIGHT AND TOTAL LBS counters return without stopping or jerking.	Replace test set.
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Replace test box.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Replace test box.
c. Release switch S9.		
3. TRANSDUCER NULL. (QA)		
a. Drain vent tank.		
<p style="text-align: center;">NOTE</p> <p>Only the vent tank pressure transducer is monitored for this test. If transducer can not be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs, all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
b. Set switch S2 to OFF.		
c. Set switch S1 to VENT TANK. Record D1 display (non-nulled).		
d. Set switch S9 to NULL and release.	D1 displays 0.00.	Do table 5, WP036 00.

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>4. PREPARATION.</p> <p>a. Defuel aircraft (A1-F18AC-PCM-000) to approximately 1000 INTR.</p> <p>b. If external fuel tanks are installed; on FUEL system control panel, set EXT TANKS WING and CTR switches to STOP.</p> <p>c. On cockpit EXT LT control panel assembly, make sure the INTR WING switch is set to NORM.</p> <p>d. Remove doors 141L/R (A1-F18AC-LMM-010).</p> <p>e. Move master precheck handle (door 8) to UP PRECHECK.</p> <p>f. Start refueling using electrical power (A1-F18AC-PCM-000). Allow tanks to precheck.</p> <p>g. On individual tank precheck valve (doors 141L/R), pull T4 handle down. Push T4 handle up when tank 4 fills to 2000 lb.</p>	<p>NOTE</p> <p>To prevent an 8 gpm leak through the wing damage shutoff valve, INTR WING switch on EXT LT control panel must be set to NORM.</p> <p>CAUTION</p> <p>To prevent fuel venting during test, continually monitor D1 display. When D1 display increases to 2.50 PSI (full vent tank), stop testing and drain the vent tank.</p> <p>NOTE</p> <p>Once a failed tank is detected, the failed tank can be confirmed by going in and out of precheck using the individual tank precheck valve and observing the increase of D1 display.</p> <p>Prior to testing, tank 4 must be filled to 2000 lb to prevent gravity fuel transfer from the wing tanks to tank 4.</p>	

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>5. TEST. (QA)</p> <p>a. On individual tank precheck valve (door 141L/R), pull LW handle down. Allow left wing to fill to high level shutoff (approximately 550 lb (JP-4) or 580 lb (JP-5)).</p> <p>b. Push LW handle up. Pull RW handle down. Allow right wing to fill to high level shutoff (approximately 550 lb (JP-5) or 580 lb (JP-5)).</p> <p>c. Push RW handle up. Pull T4 handle down. Allow tank 4 to fill to high level shutoff (approximately 3,460 lb (JP-4) or 3,620 lb (JP-5)).</p> <p>d. Push T4 handle up. Pull T3 handle down. Allow tank 3 to fill to high level shutoff (approximately 1,340 lb (JP-4) or 1,400 lb (JP-5)).</p> <p>e. Push T3 handle up. Pull T2 handle down. Allow tank 2 to fill to high level shutoff (approximately 1,710 lb (JP-4) or 1,790 lb (JP-5)).</p> <p>f. Push T2 handle up. Pull T1 handle down. Allow tank 1 to fill to high level shutoff. Approximate amounts listed below:</p> <p style="padding-left: 40px;">JP-4, F/A-18A - 2,720 lb</p> <p style="padding-left: 40px;">JP-5, F/A-18A - 2,840 lb</p> <p style="padding-left: 40px;">JP-4, F/A-18B - 2,050 lb</p> <p style="padding-left: 40px;">JP-5, F/A-18B - 2,150 lb</p> <p>6. FINAL.</p> <p>a. Turn off fuel servicing equipment.</p>	<p>D1 display (vent tank head pressure) shows no increase.</p> <p>D1 displays shows no increase.</p> <p>D1 display shows no increase.</p> <p>D1 display shows no increase.</p> <p>D1 display shows no increase.</p> <p>D1 display shows no increase.</p>	<p>Replace the left wing high level refuel/defuel pilot valve (A1-F18AC-460-300, WP062 00). Before installing new valve, inspect connecting tubes for cracked flares.</p> <p>Replace the right wing high level refuel/defuel pilot valve (A1-F18AC-460-300, WP062 00). Before installing new valve, inspect connecting tubes for cracked flares.</p> <p>Do table 10. While doing table 10, inspect tank 4 forward vent system tubing for cracks and proper installation. If malfunction still exists, inspect tank 4 aft vent system tubing and inspect dive vent check valve for failed open (A1-F18AC-460-300, WP156 00).</p> <p>Do table 9. While doing table 9, inspect tank 3 vent system tubing for cracks, proper installation and dive vent check valve for failed open (A1-F18AC-460-300, WP156 00).</p> <p>Do table 8. While doing table 8, inspect tank 2 vent system tubing for cracks, proper installation and dive vent check valve for failed open (A1-F18AC-460-300, WP156 00).</p> <p>Do table 7. While doing table 7, inspect tank 1 vent system tubing for cracks, and proper installation. Verify climb vent check valve (A1-F18AC-460-300, WP154 00) and dive vent check valve (A1-F18AC-460-300, WP155 00) are not failed open.</p>

Table 6. Individual Fuel Tank High Level Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>b. Rotate master precheck valve handle to DOWN OFF.</p> <p>c. Disconnect fuel servicing equipment.</p> <p>d. Close door 8 (A1-F18AC-LMM-010).</p> <p>e. On FUEL system control panel, set EXT TANKS WINGS and CTR switches to NORM.</p> <p>f. Turn off and remove external electrical power (A1-F18AC-LMM-000).</p> <p>g. Push T1 handle up (doors 141L/R).</p> <p>h. Install doors 141L/R (A1-F18AC-LMM-010).</p> <p>i. Disconnect fuel system test set.</p> <p>j. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM-010).</p> <p>k. If required, reconnect 5P-F014B to J2 on intermediate device. Close door 14R (A1-F18AC-LMM-010).</p> <p>l. Connect 5P-G024 to 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p>		

Table 7. No. 1 Fuel Tank Failed High Level Shutoff

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p align="center">For component location, refer to figures 2 and 10.</p> <p>Malfunction is caused by one of the items listed below:</p> <p align="center">Fuel Level Control Shutoff Valve High Level Pilot Valve Pilot Circuit Tube or Components (Union or Packing)</p>		
Procedure	No	Yes
<p>a. Do substeps below:</p> <ol style="list-style-type: none"> (1) Turn off fuel servicing equipment. (2) Rotate master precheck valve handle (door 8) to DOWN OFF. (3) Disconnect fuel servicing equipment. (4) Close door 8 (A1-F18AC-LMM-010). (5) On FUEL system control panel, set the EXT TANKS WING and CTR switches to NORM. (6) Turn off and remove external electrical power (A1-F18AC-LMM-000). (7) Do general preparation for removal (A1-F18AC-460-300, WP013 00). (8) Remove the pilot circuit tubes between the high level pilot valve and fuel level control shutoff valve (A1-F18AC-460-300, WP057 00). (9) Remove union and packing from high level pilot valve (A1-F18AC-460-300, WP057 00). (10) Remove union and packing from fuel level control shutoff valve (A1-F18AC-460-300, WP057 00). (11) Inspect fuel level control shutoff valve, pilot circuit tubes, and unions for damage. Replace damaged components as required (A1-F18AC-460-300, WP057 00). (12) Install new packings and high level pilot valve (A1-F18AC-460-300, WP057 00). Install unions and pilot circuit tube (A1-F18AC-460-300, WP057 00). (13) Refuel aircraft (A1-F18AC-PCM-000). 		

Table 8. No. 2 Fuel Tank Failed High Level Shutoff

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>For component location, refer to figures 3 and 10.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Fuel Level Control Shutoff Valve High Level Pilot Valve Pilot Circuit Tube or Components (Elbow, Union or Packing)</p>		
Procedure	No	Yes
<p>a. Do substeps below:</p> <ol style="list-style-type: none"> (1) Turn off fuel servicing equipment. (2) Rotate master precheck valve handle (door 8) to DOWN OFF. (3) Disconnect fuel servicing equipment. (4) Close door 8 (A1-F18AC-LMM-010). (5) On FUEL system control panel, set the EXT TANKS WING and CTR switches to NORM. (6) Turn off and remove external electrical power (A1-F18AC-LMM-000). (7) Do general preparation for removal (A1-F18AC-460-300, WP013 00). (8) Remove the pilot circuit tube between the high level pilot valve and fuel level control shutoff valve (A1-F18AC-460-300, WP058 00). (9) Disconnect elbow at union. (10) Remove unions and packings from the fuel level control shutoff valve and high level pilot valve. (11) Inspect fuel level control shutoff valve, pilot circuit tube, elbow and unions for damage. Replace damaged components as required (A1-F18AC-460-300, WP058 00). (12) Install new packings and high level pilot valve (A1-F18AC-460-300, WP058 00). Install unions and pilot circuit tube (A1-F18AC-460-300, WP058 00). (13) Refuel aircraft (A1-F18AC-PCM-000). 	-	-

Table 9. No. 3 Fuel Tank Failed High Level Shutoff

Support Equipment Required		
None		
Materials Required		
None		
NOTE		
<p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>For component location, refer to figures 4 and 10.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Fuel Level Control Shutoff Valve High Level Pilot Valve Pilot Circuit Tube or Components (Elbow, Union, Connector, or Packing)</p>		
Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Turn off fuel servicing equipment.</p> <p>(2) Rotate master precheck valve handle (door 8) to DOWN OFF.</p> <p>(3) Disconnect fuel servicing equipment.</p> <p>(4) Close door 8 (A1-F18AC-LMM-010).</p> <p>(5) On FUEL system control panel, set the EXT TANKS WING and CTR switches to NORM.</p> <p>(6) Turn off and remove external electrical power (A1-F18AC-LMM-000).</p> <p>(7) Do general preparation for removal (A1-F18AC-460-300, WP013 00).</p> <p>(8) Remove the pilot circuit tube between the high level pilot valve and fuel level control shutoff valve (A1-F18AC-460-300, WP059 00).</p> <p>(9) Remove bolt, connector and packings from high level pilot valve (A1-F18AC-460-300, WP059 00).</p> <p>(10) Remove elbow, union and packing from fuel level control shutoff valve (A1-F18AC-460-300, WP059 00).</p> <p>(11) Inspect fuel level control shutoff valve, pilot circuit tube, elbow, union and connector for damage. Replace damaged components as required (A1-F18AC-460-300, WP059 00).</p> <p>(12) Install new packings and high level pilot valve (A1-F18AC-460-300, WP059 00). Install unions and pilot circuit tube (A1-F18AC-460-300, WP059 00).</p> <p>(13) Refuel aircraft (A1-F18AC-PCM-000).</p>	-	-

Table 10. No. 4 Fuel Tank Failed High Level Shutoff

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>For component location, refer to figures 5 and 10.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Fuel Level Control Shutoff Valve High Level Pilot Valve Pilot Circuit Tube or Components (Elbow, Unions, or Packings)</p>		
Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Turn off fuel servicing equipment.</p> <p>(2) Rotate master precheck valve handle (door 8) to DOWN OFF.</p> <p>(3) Disconnect fuel servicing equipment.</p> <p>(4) Close door 8 (A1-F18AC-LMM-010).</p> <p>(5) On FUEL system control panel, set the EXT TANKS WING and CTR switches to NORM.</p> <p>(6) Turn off and remove external electrical power (A1-F18AC-LMM-000).</p> <p>(7) Do general preparation for removal (A1-F18AC-460-300, WP013 00).</p> <p>(8) Remove the pilot circuit tube between the high level pilot valve and fuel level control shutoff valve (A1-F18AC-460-300, WP060 00).</p> <p>(9) Remove elbow, union and packing from fuel level control shutoff valve (A1-F18AC-460-300, WP060 00).</p> <p>(10) Remove union and packing from high level pilot valve (A1-F18AC-460-300, WP060 00).</p> <p>(11) Inspect fuel level control shutoff valve, pilot circuit tube, elbow and unions for damage. Replace damaged components as required (A1-F18AC-460-300, WP060 00).</p> <p>(12) Install new packings and high level pilot valve (A1-F18AC-460-300, WP060 00). Install unions and pilot circuit tube (A1-F18AC-460-300, WP060 00).</p> <p>(13) Refuel aircraft (A1-F18AC-PCM-000).</p>	-	-

Table 11. Refuel Manifold Does Not Scavenge

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">Note</p> <p align="center">For component location, refer to figure 6. Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00), may be used while doing this procedure.</p> <p>Malfunction is caused by one of the items listed below:</p> <p align="center">Motive Flow Tube No. 2 Fuel Tank Wash Filter Refueling Manifold Scavenge Jet Ejector</p>		
Procedure	No	Yes
a. Do substeps below:		
(1) Get access to refueling manifold scavenge jet ejector (A1-F18AC-460-300, WP064 00).		
(2) Remove and inspect the motive flow tube (A1-F18AC-460-300, WP064 00). Is tube damaged or clogged?	b	c
b. Remove and inspect the refueling manifold scavenge jet ejector (A1-F18AC-460-300, WP064 00). Is ejector damaged or clogged?	d	e
c. Replace motive flow tube (A1-F18AC-460-300, WP064 00).	-	-
d. Replace no. 2 fuel tank wash filter (A1-F18AC-460-300, WP131 00).	-	-
e. Replace refueling manifold scavenge jet ejector (A1-F18AC-460-300, WP064 00).	-	-

Table 12. Aircraft Does Not Defuel

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p>

Table 12. Aircraft Does Not Defuel (Continued)

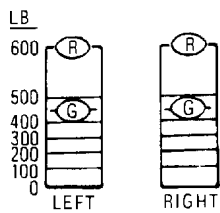
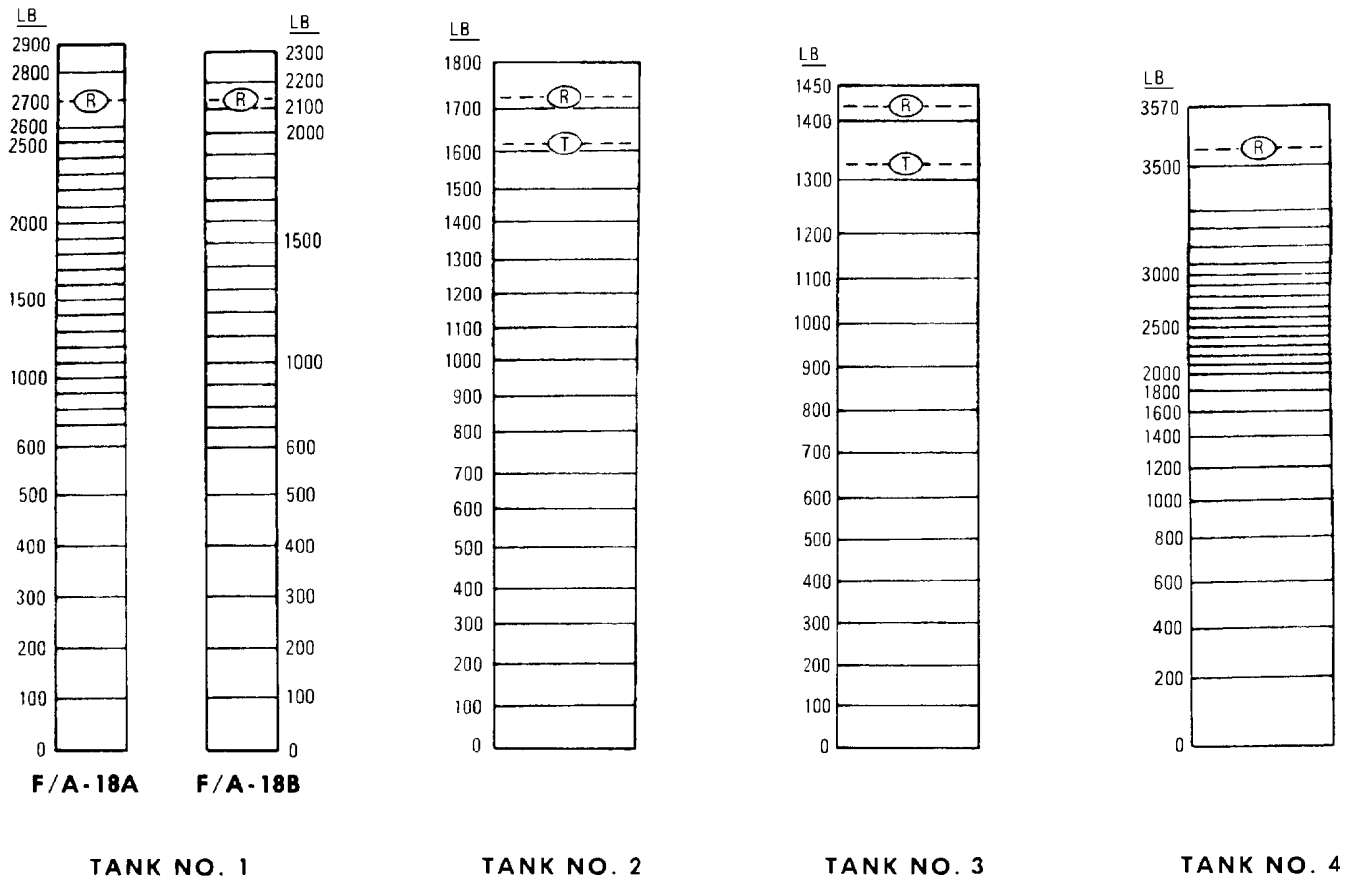
NOTE		
<p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) and Fuel Qty Vertical Scale Display (figure 1, WP003 01), may be used while doing this procedure.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Piping Defuel Valve No. 2 Fuel Tank Gravity Feed Check Valve No. 3 Fuel Tank Gravity Feed Check Valve Refuel/Defuel Shutoff Valve Wing Low Level Refuel/Defuel Pilot Valve Wing Refuel/Defuel Shutoff Valve Wing Refuel/Defuel Strainer</p>		
Procedure	No	Yes
a. Did fuselage fuel tank amounts decrease from initial fuel amounts recorded?	b	c
b. Did either wing fuel amount decrease from initial fuel amount recorded?	d	e
c. Did tank 3 fuel amount decrease to 450 lb?	f	g
d. Do substeps below:		
(1) Defuel internal fuel tanks using alternate defueling procedure (A1-F18AC-PCM-000).		
(2) Replace refuel/defuel shutoff valve (A1-F18AC-460-300, WP054 00).	-	-
e. Do substeps below:		
(1) Defuel internal fuel tanks using alternate defueling procedure (A1-F18AC-PCM-000).		
(2) Replace defuel valve (A1-F18AC-460-300, WP056 00).	-	-
f. This step is required to make sure the refuel/defuel plumbing and valves are good. If not, defueling suction pressure will stop when fuel amount depletes to level of failed open component. Do Refuel/Defuel System Pressure Test (Internal Tanks), table 2, WP003 00.	-	-
g. Continue defueling until defuel shutdown. On cockpit FUEL QTY indicator, did TOTAL LBS counter show less than 700 lb?	h	i
h. Did tank 1 fuel amount decrease to less than 100 lb?	j	k
i. Do substeps below:		
(1) Shut down defueling equipment.		

Table 12. Aircraft Does Not Defuel (Continued)

Procedure	No	Yes
(2) Turn off and disconnect external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect defueling nozzle (A1-F18AC-PCM-000).		
(4) Install ground refueling receptacle cap (A1-F18AC-PCM-000).		
(5) Remove aircraft static ground wiring (A1-F18AC-PCM-000).		
(6) Close door 8 (A1-F18AC-LMM-010).	-	-
j. Replace no. 2 fuel tank gravity feed check valve (A1-F18AC-460-300, WP111 00). . . .	-	-
k. Did tank 4 fuel amount decrease less than 200 lb?	l	m
l. Replace no. 3 fuel tank gravity feed check valve (A1-F18AC-460-300, WP115 00). . . .	-	-
m. Did left wing fuel amount decrease less than 100 lb?	n	q
n. Replace left wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP061 00). If installed, inspect the wing refuel/defuel shutoff valve inlet strainer for obstruction. Is strainer clogged?	o	p
o. Replace left wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP0061 00) and left wing low level refuel/defuel pilot valve (A1-F18AC-460-300, WP063 00). . . .	-	-
p. Remove obstruction from strainer and reinstall strainer and wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP061 00).	-	-
q. Did right wing fuel amount decrease less than 100 lb?	r	i
r. Remove right wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP061 00). If installed, inspect the wing refuel/defuel shutoff valve inlet strainer for obstruction. Is strainer clogged?	s	p
s. Replace right wing refuel/defuel shutoff valve (A1-F18AC-460-300, WP061 00) and right wing low level refuel/defuel pilot valve (A1-F18AC-460-300, WP063 00).	-	-

Table 13. Wrong Test Set Indications

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
—	External Air Source (20 to 40 psi)	
Materials Required		
Specification or Part Number	Nomenclature	
TT-I-735, Grade A (FSCM 81348)	Isopropyl Alcohol	
CCCC440TY1CL1 (FSCM 81348)	Cheesecloth	
NOTE		
Fuel System Test Set Controls and Displays (figure 9) may be used while doing this procedure.		
Malfunction is caused by one of the items listed below:		
Test Set		
Test Set Receptacle Contamination		
Procedure	No	Yes
NOTE		
Fuel system test set receptacles J1 and J2 are subject to foreign particles which could cause shorting of pins.		
a. Clean receptacles J1 and J2 per substeps below:		
<div>WARNING</div>		
Isopropyl alcohol is highly flammable and toxic. Do not use near open flame or sparks. Use only in well ventilated areas.		
(1) Clean receptacles with cheesecloth moistened with isopropyl alcohol.		
<div>WARNING</div>		
To prevent injury to personnel, do not direct compressed air against skin.		
(2) Blow loose foreign particles from receptacles using dry, filtered, low pressure (20 to 40 psi) air.		
(3) If test set malfunction still exists, replace test set.	-	-



WING TANKS

LEGEND

- (R) NORMAL REFUEL LEVEL
- (T) NORMAL TRANSFER LEVEL
- (G) NORMAL GRAVITY TRANSFER LEVEL

FUEL AMOUNTS SHOWN ARE JP-5 AT
6.8 LB/LB/US GALLON PITCH AND ROLL IS 0°

Figure 1. Fuel Qty Vertical Scale Display

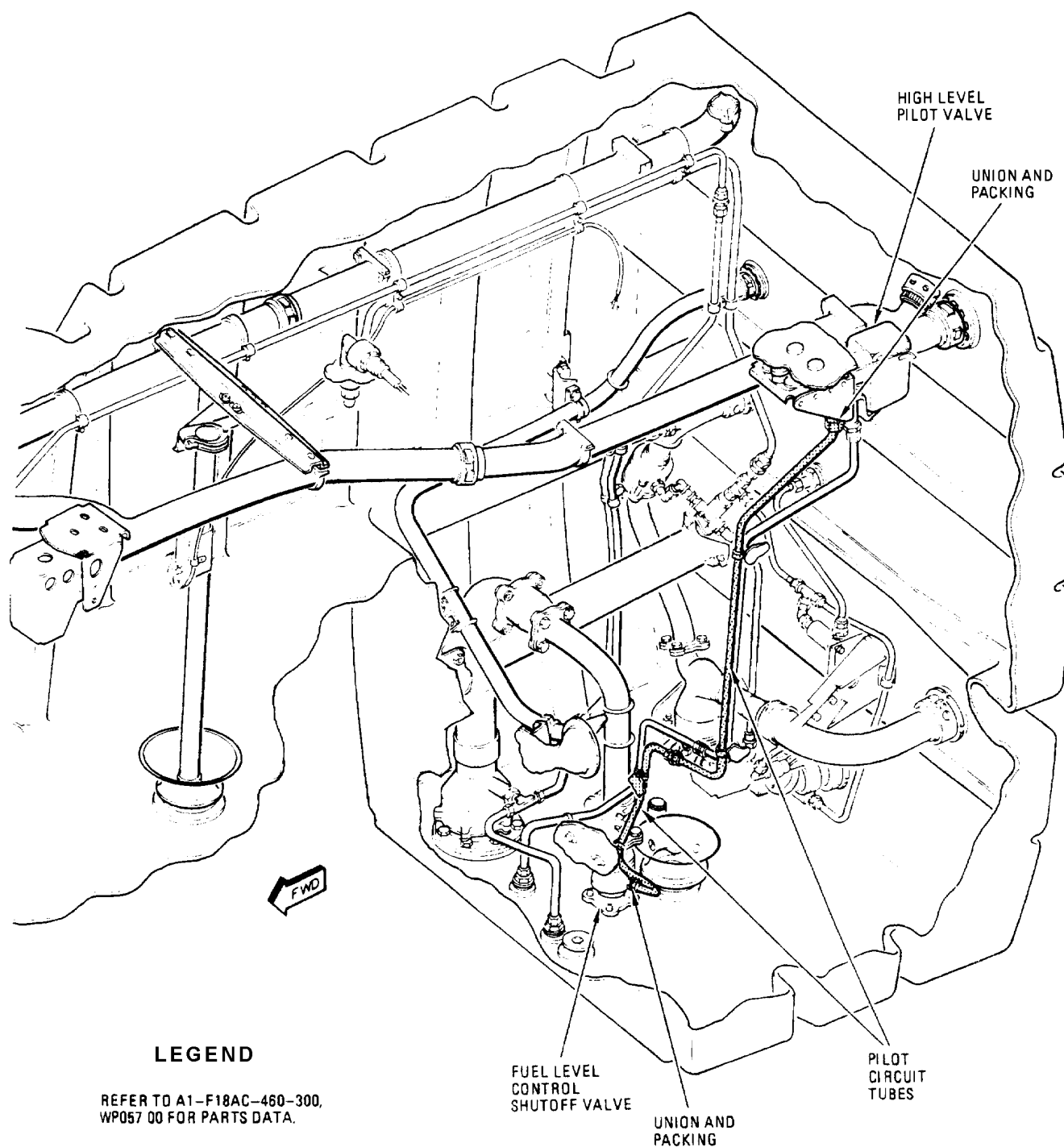
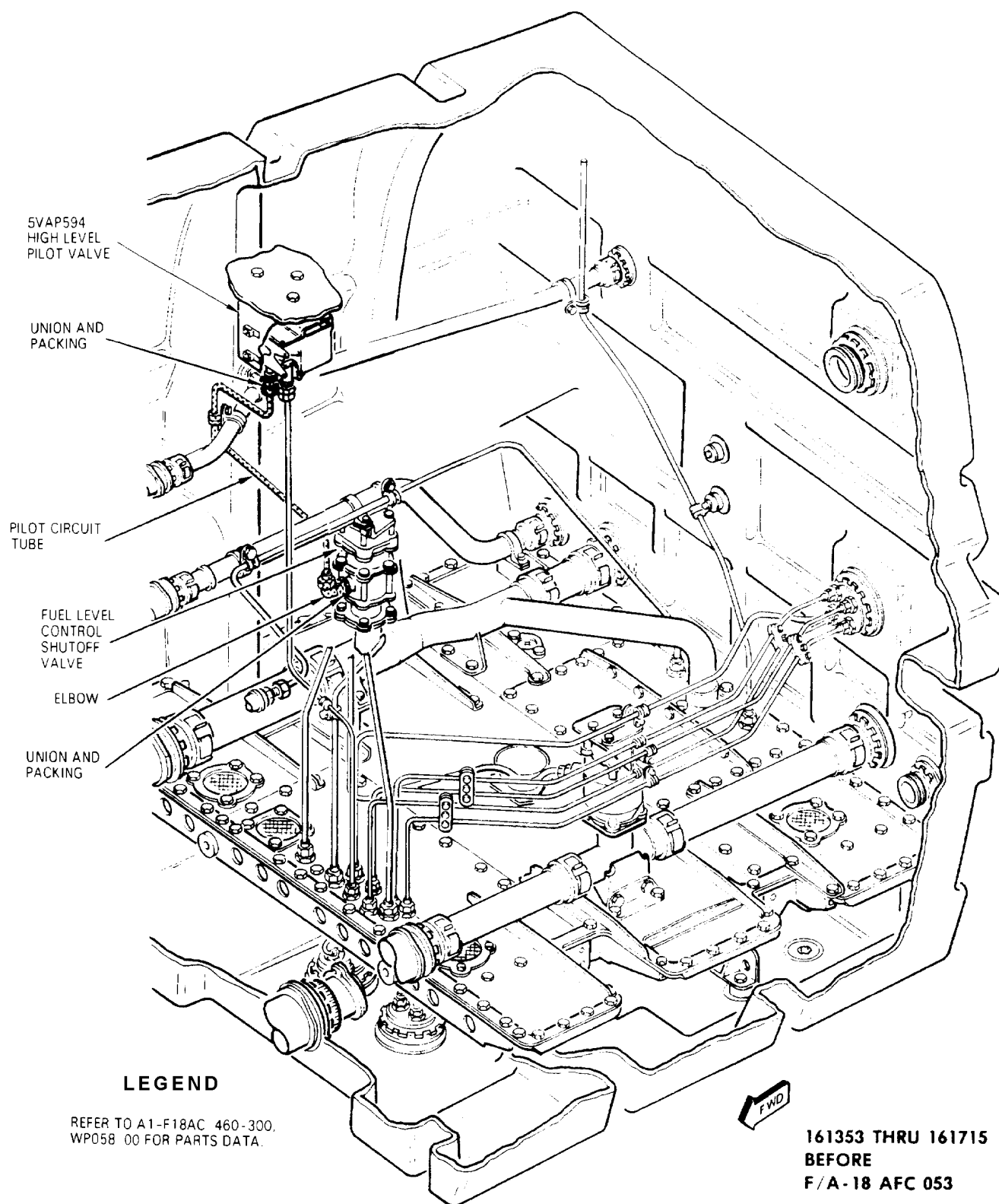


Figure 2. No. 1 Fuel Tank Troubleshooting Component Locator



03010301

Figure 3. No. 2 Fuel Tank Troubleshooting Component Locator (Sheet 1 of 2)

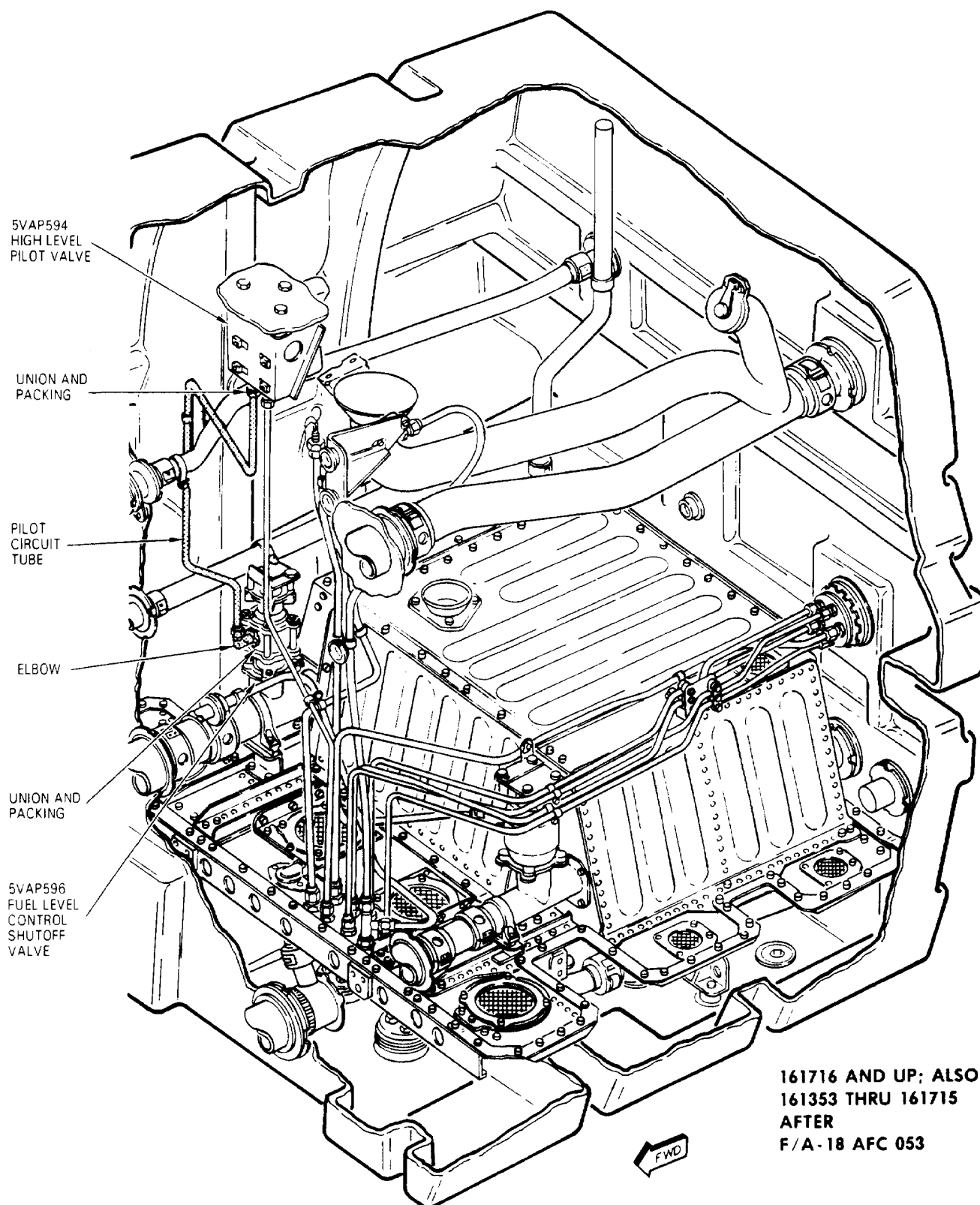
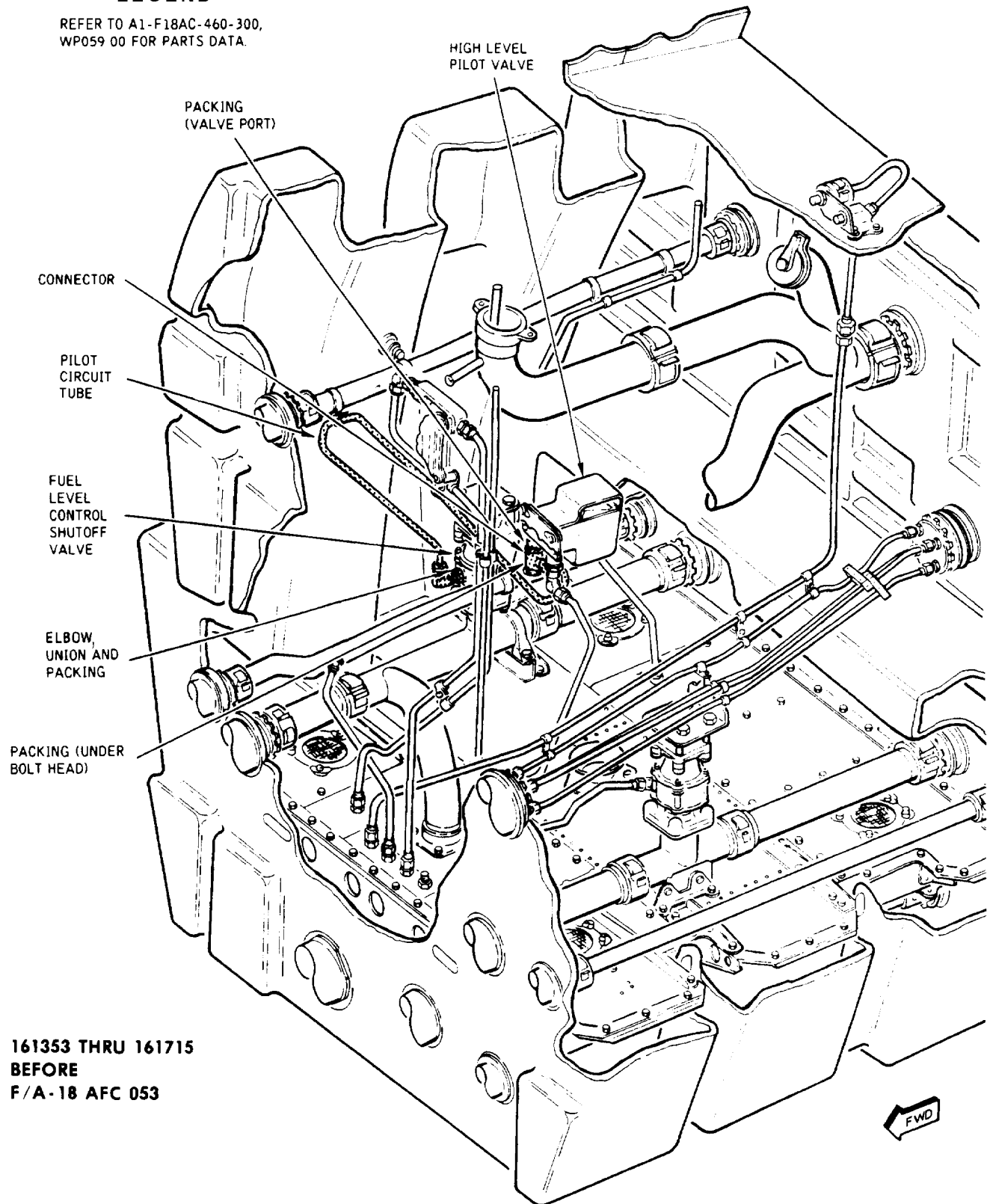


Figure 3. No. 2 Fuel Tank Troubleshooting Component Locator (Sheet 2)

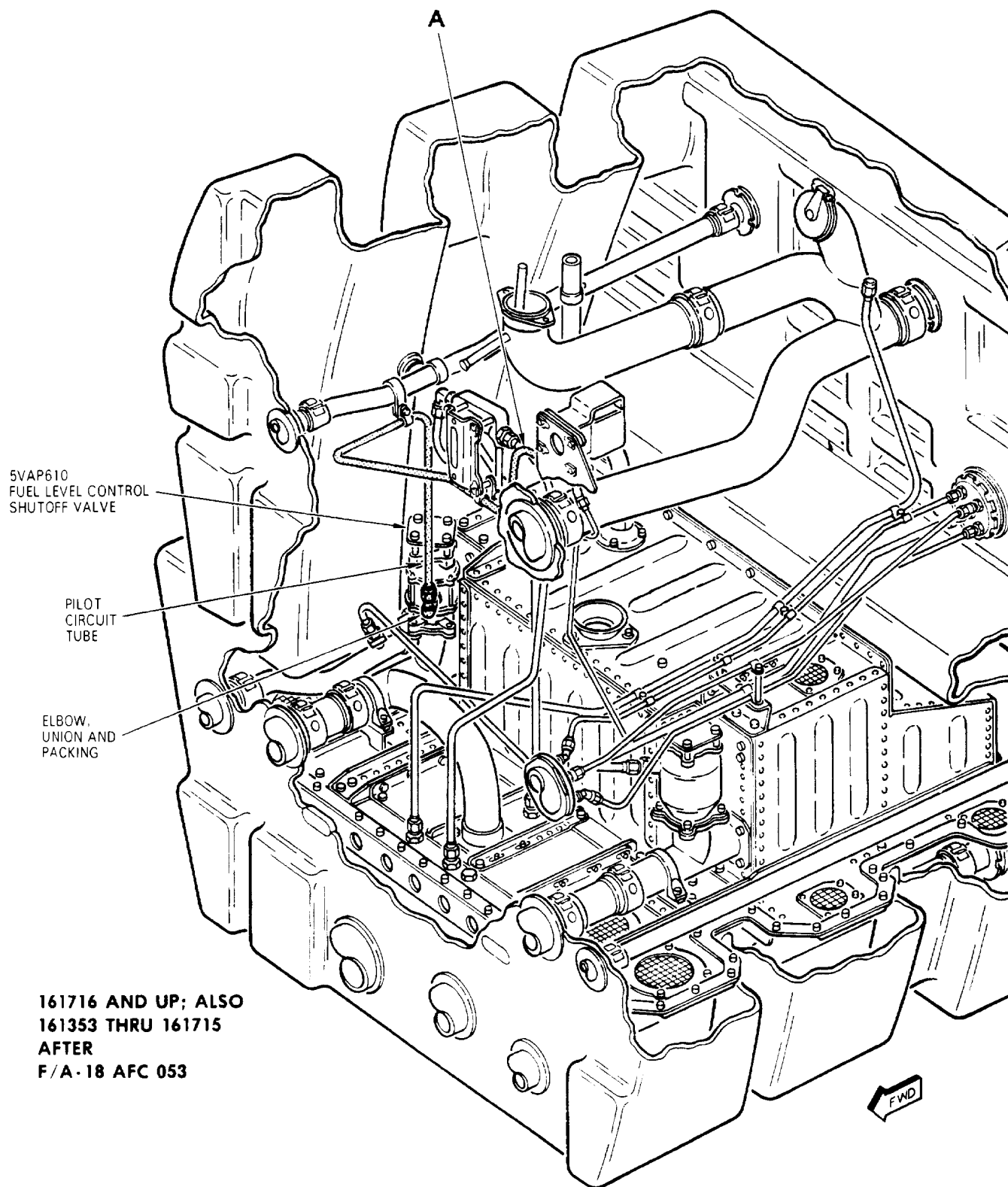
LEGEND

REFER TO A1-F18AC-460-300,
WP059 00 FOR PARTS DATA.



03010401

Figure 4. No. 3 Fuel Tank Troubleshooting Component Locator (Sheet 1 of 3)



03010402

Figure 4. No. 3 Fuel Tank Troubleshooting Component Locator (Sheet 2)

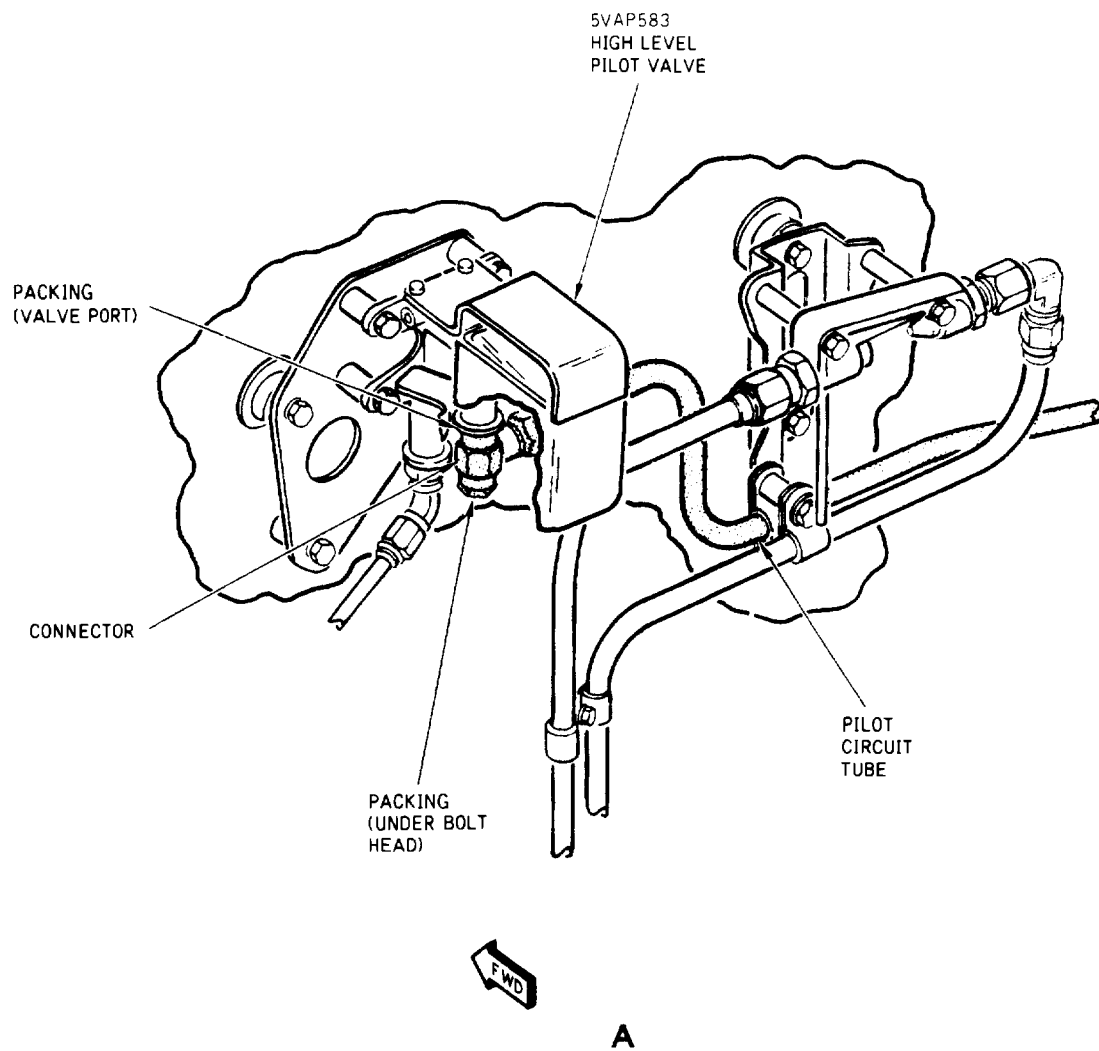


Figure 4. No. 3 Fuel Tank Troubleshooting Component Locator (Sheet 3)

LEGEND

REFER TO A1-F18AC-460-300,
WP060 00 FOR PARTS DATA.

HIGH LEVEL
PILOT VALVE

UNION AND
PACKING

PILOT
CIRCUIT
TUBE

ELBOW, UNION
AND PACKING

REFUEL
MANIFOLD

FUEL LEVEL
CONTROL
SHUTOFF VALVE

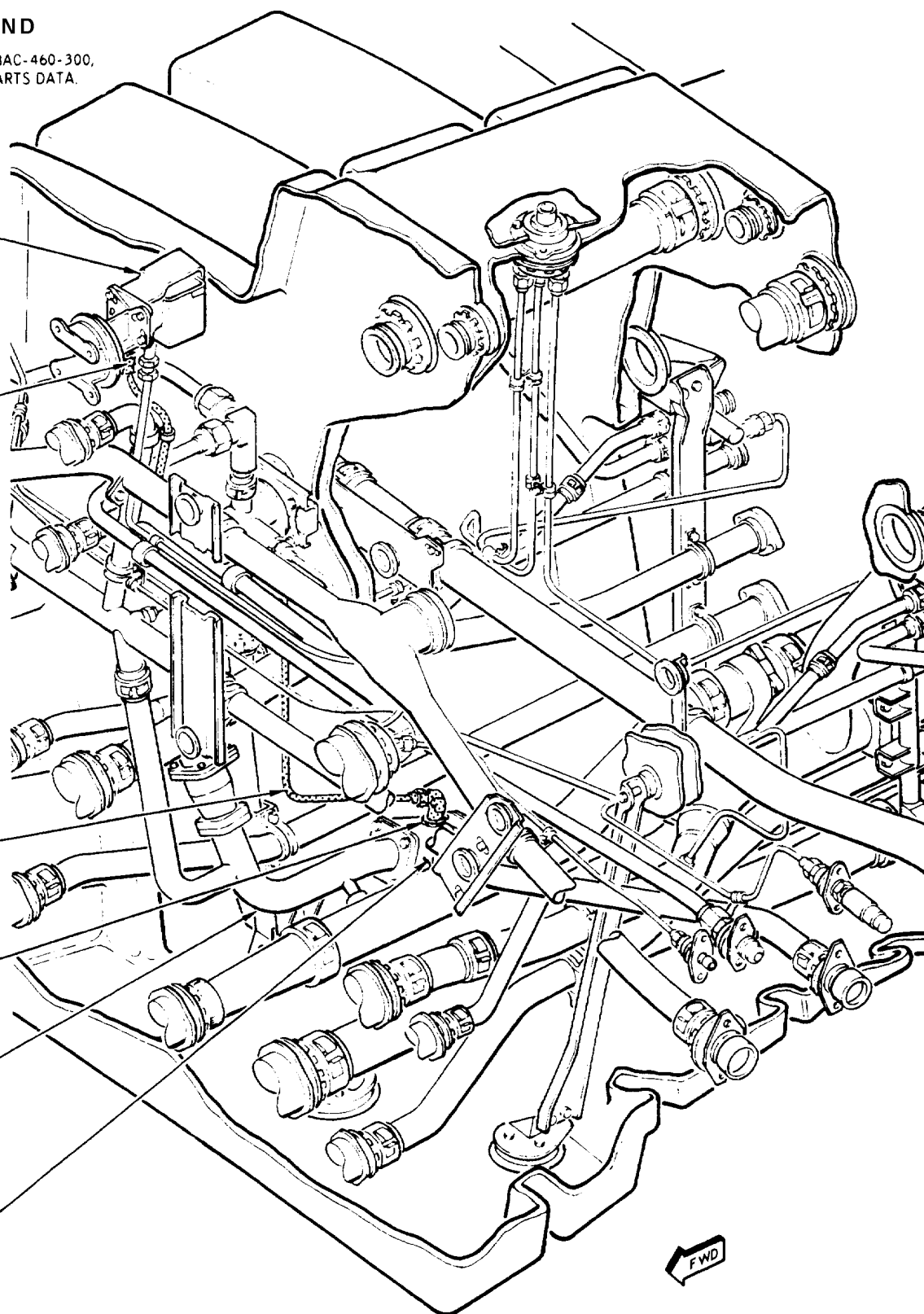
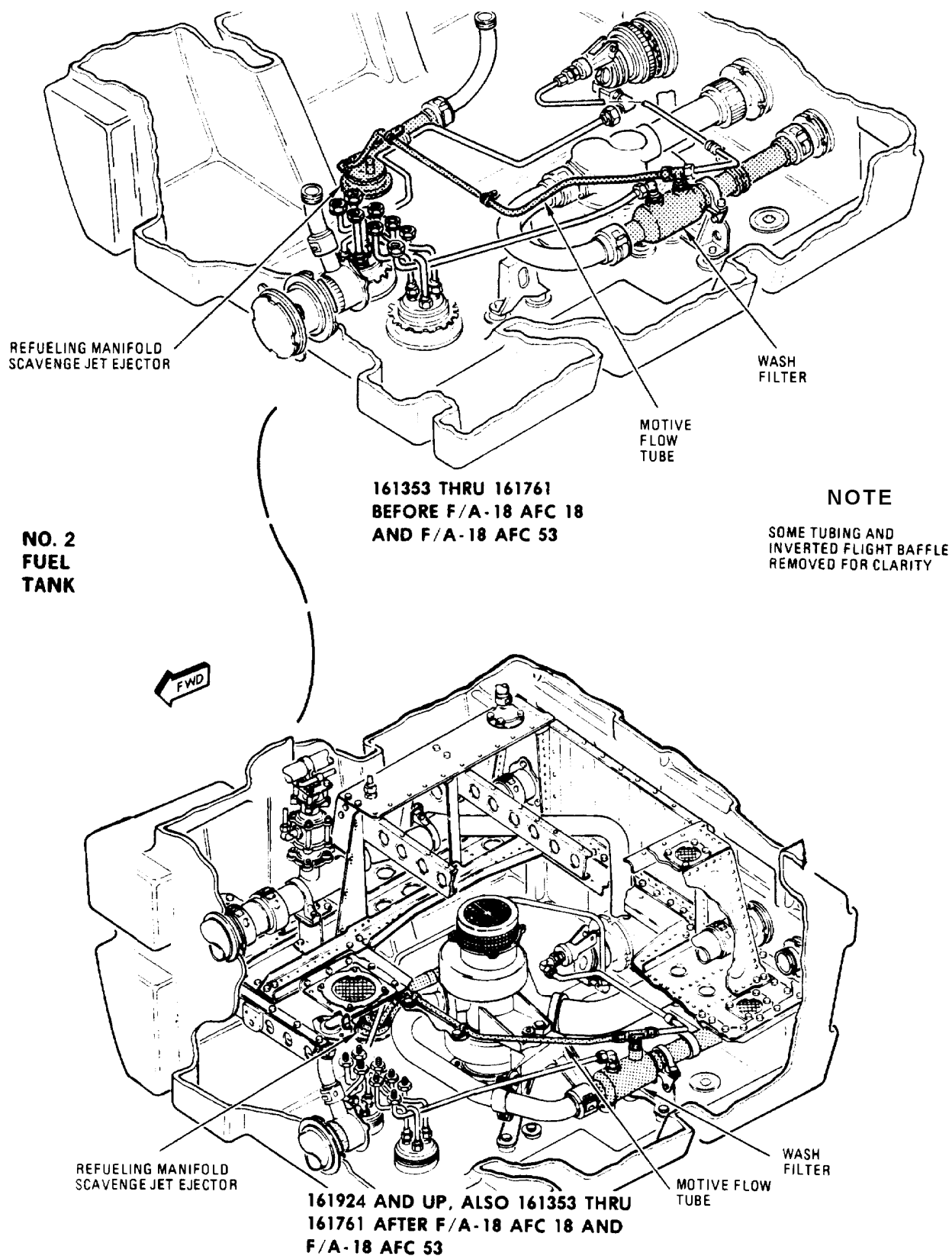


Figure 5. No. 4 Fuel Tank Troubleshooting Component Locator

00301005



00301006

Figure 6. Refuel Scavenge Test Troubleshooting Component Locator

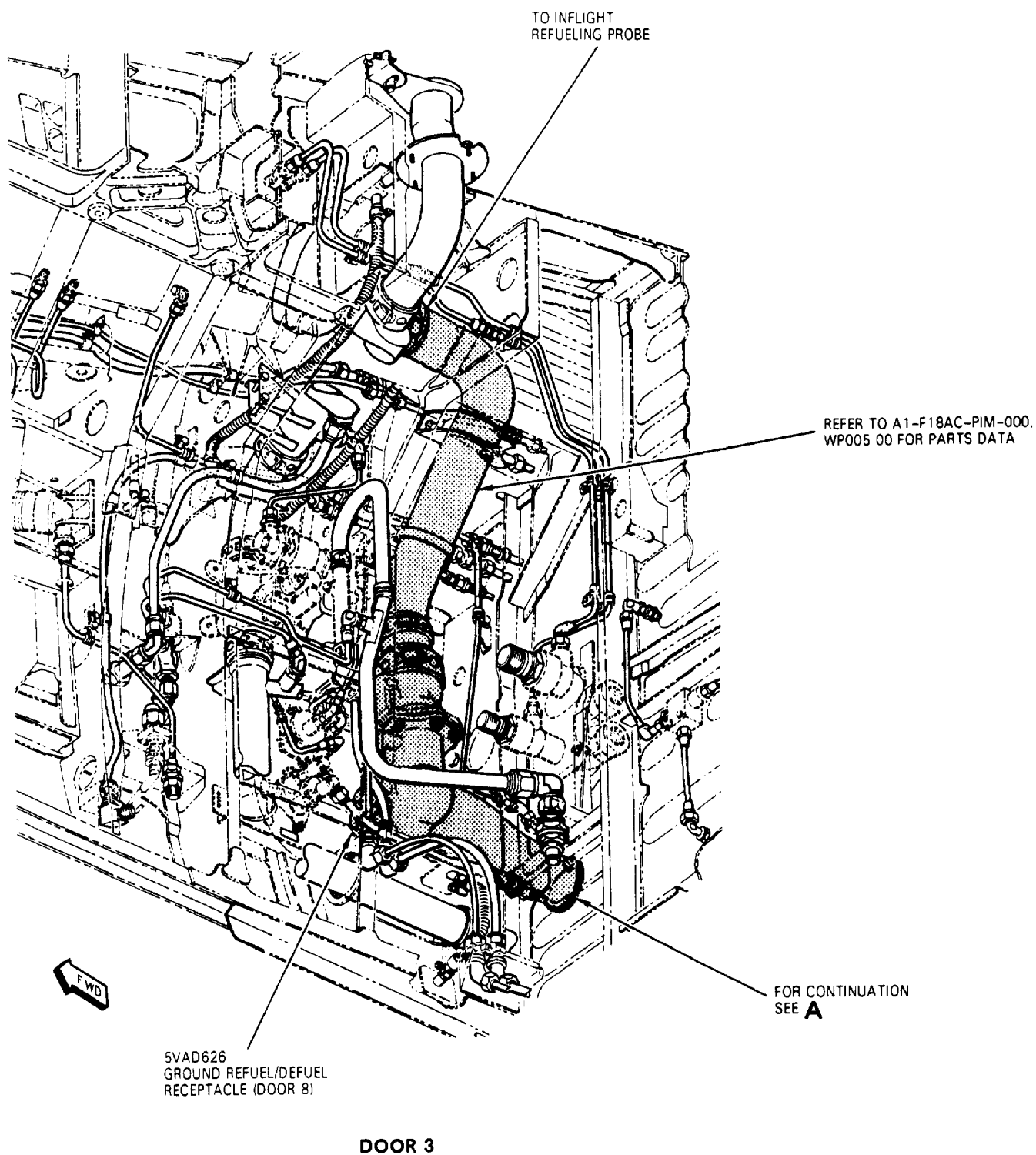


Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 1 of 8)

03010701

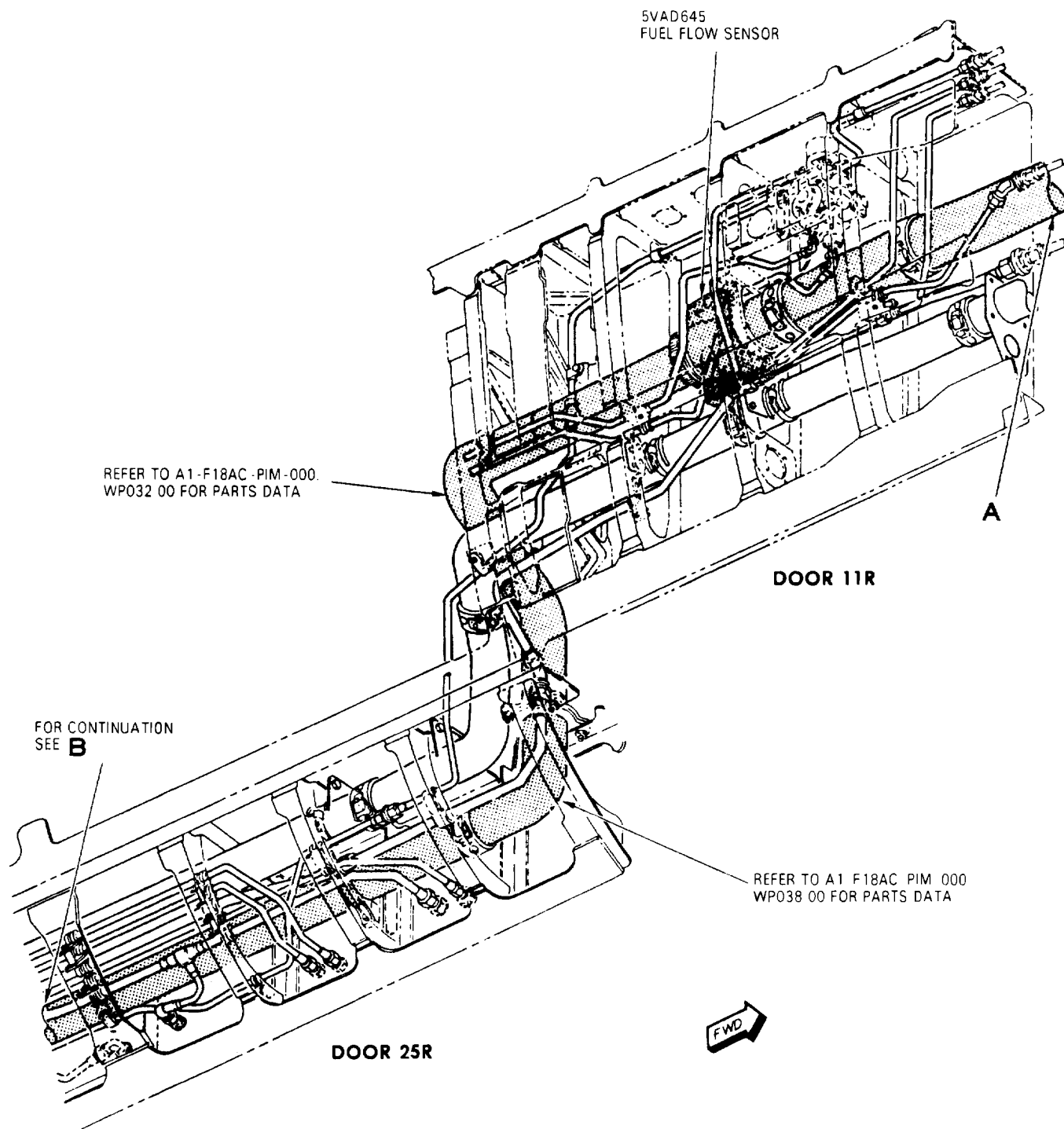
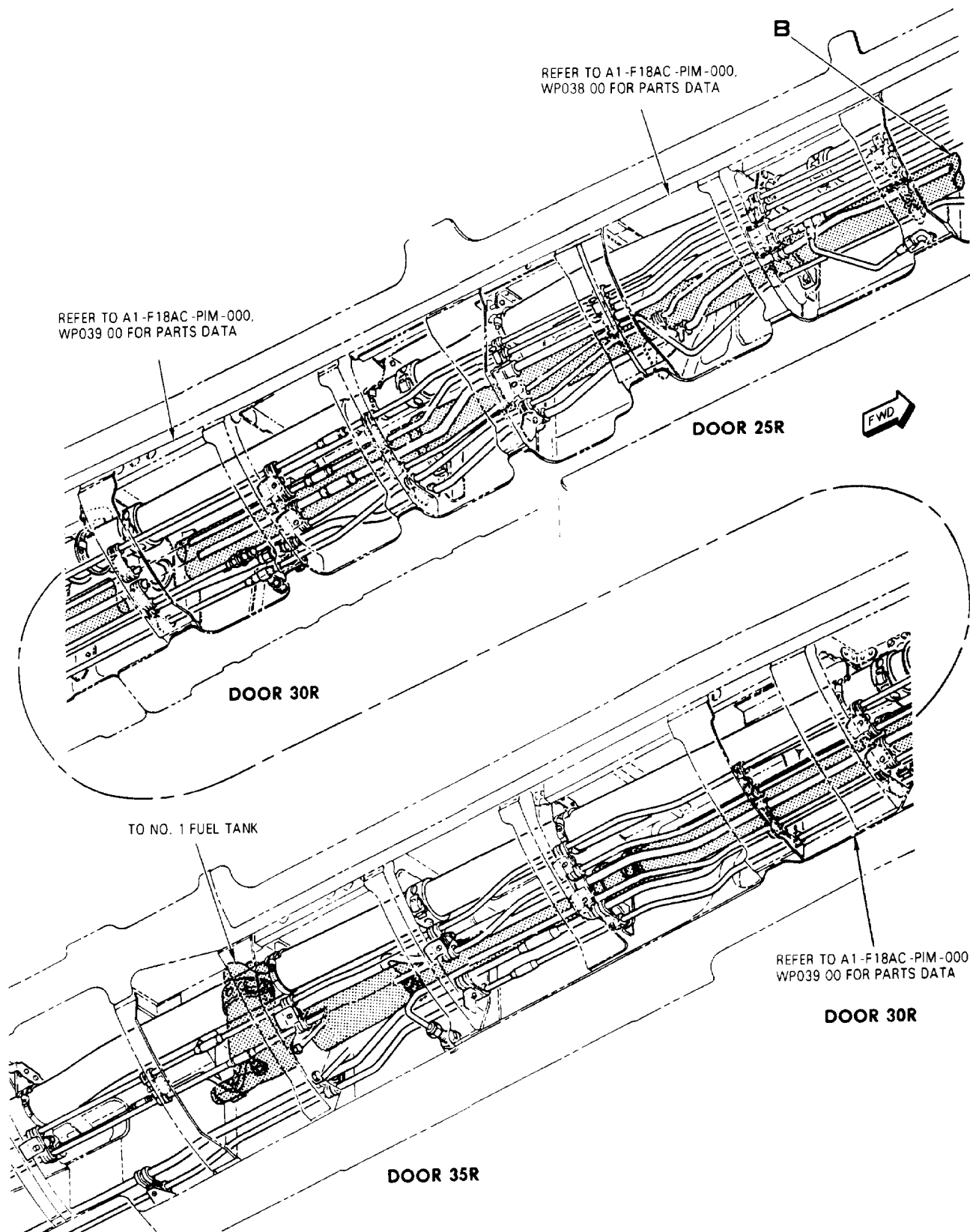
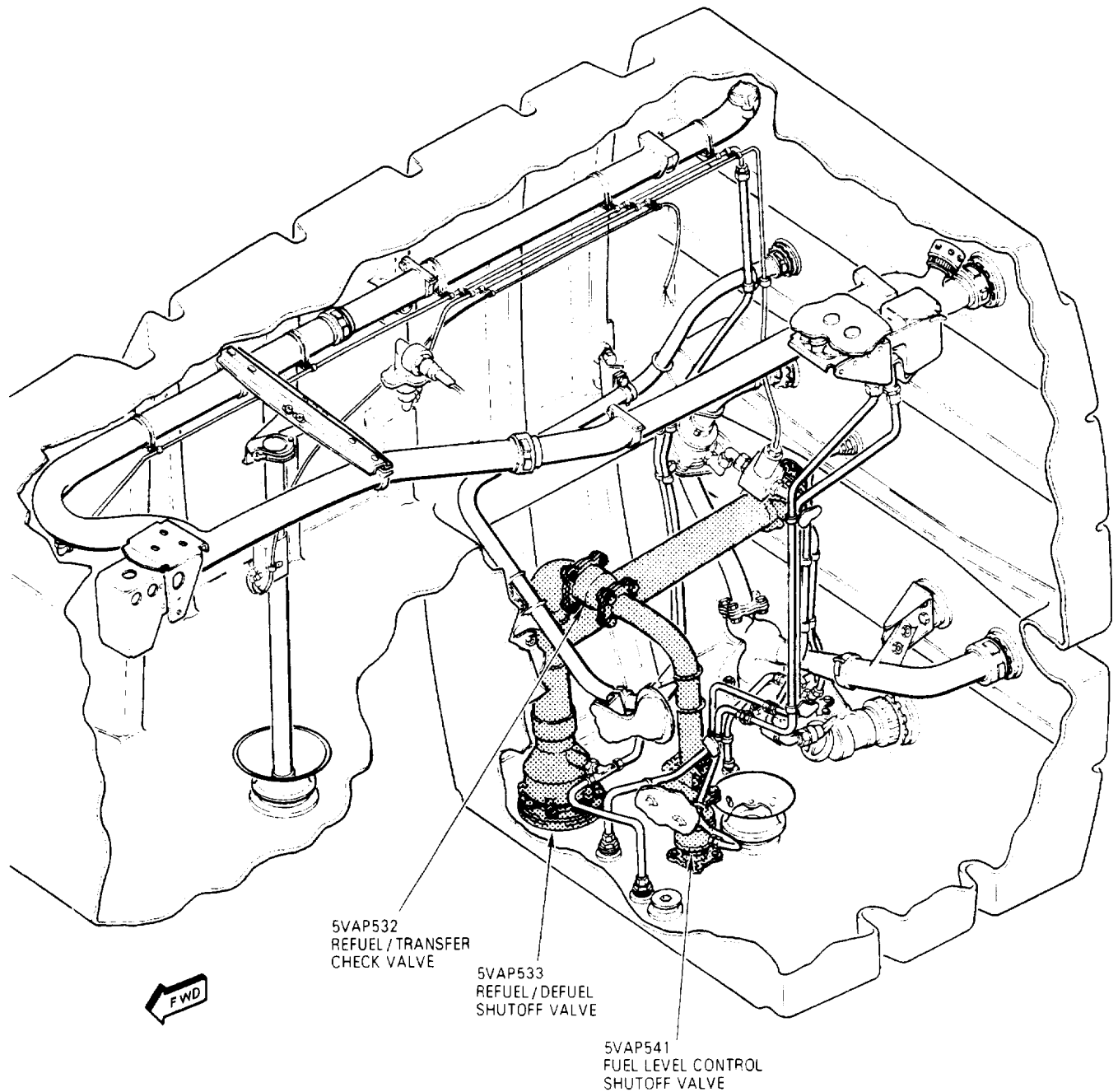


Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 2)



03010703

Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 3)



NO. 1 FUEL TANK

Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 4)

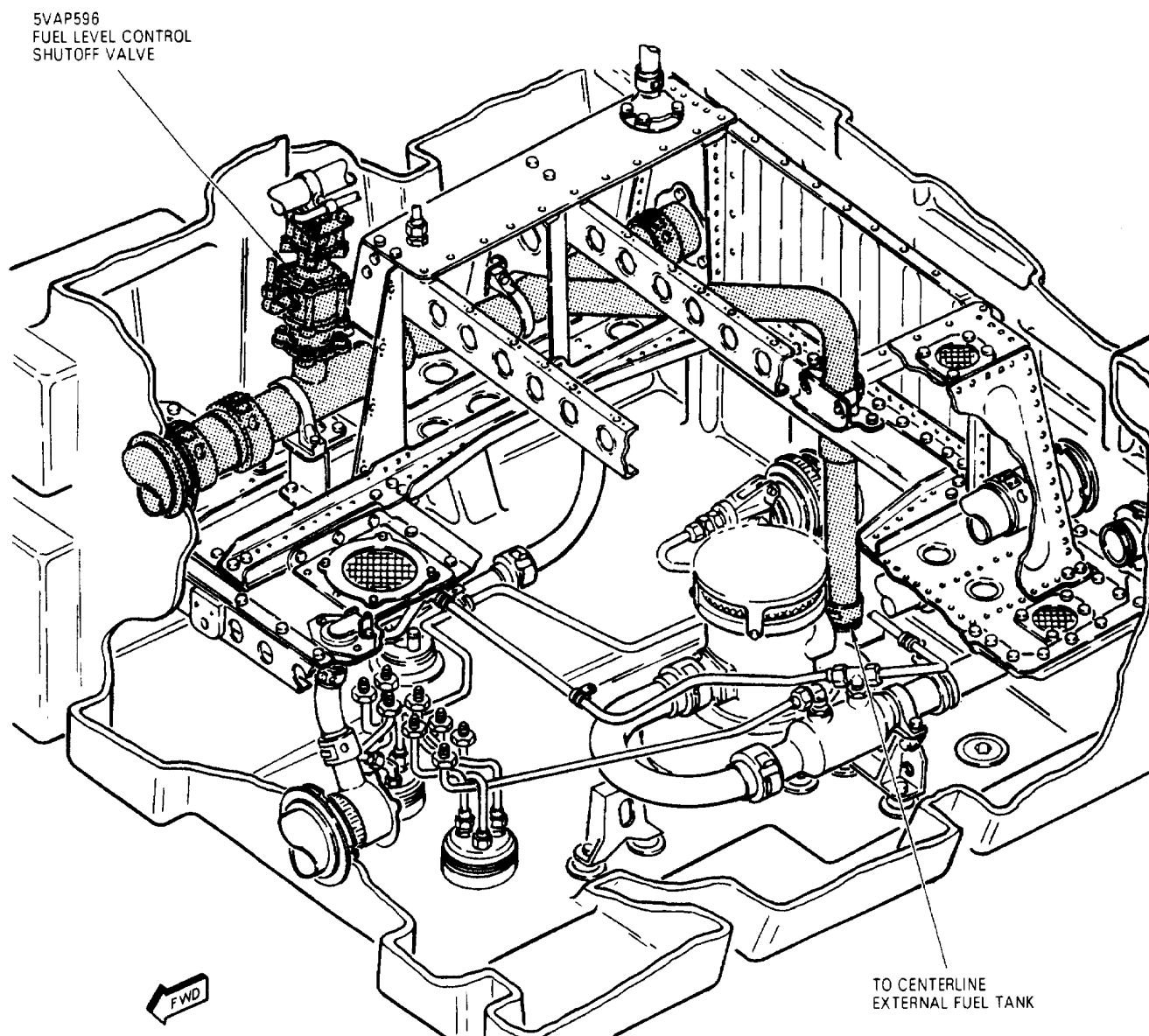


Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 5)

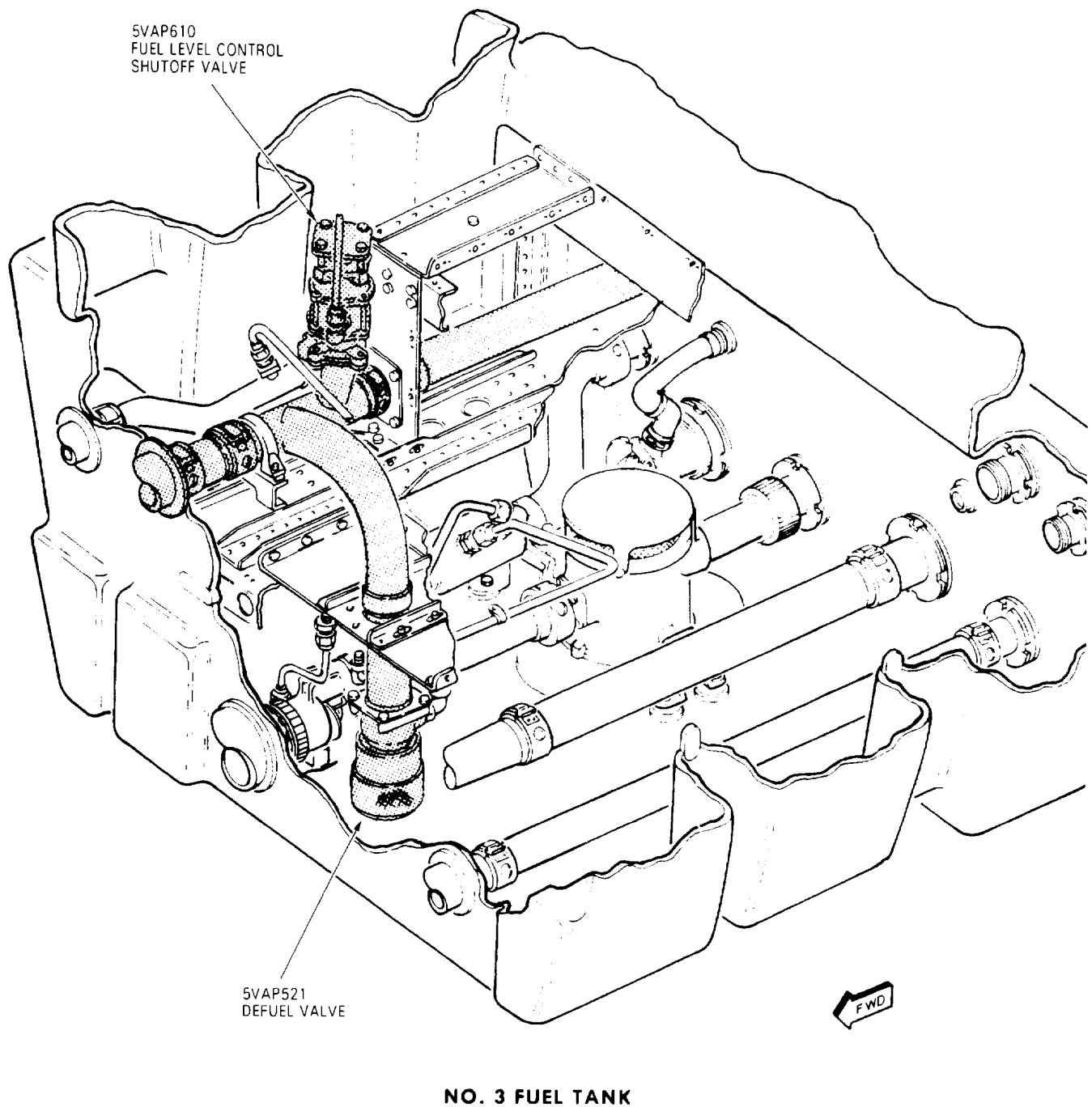
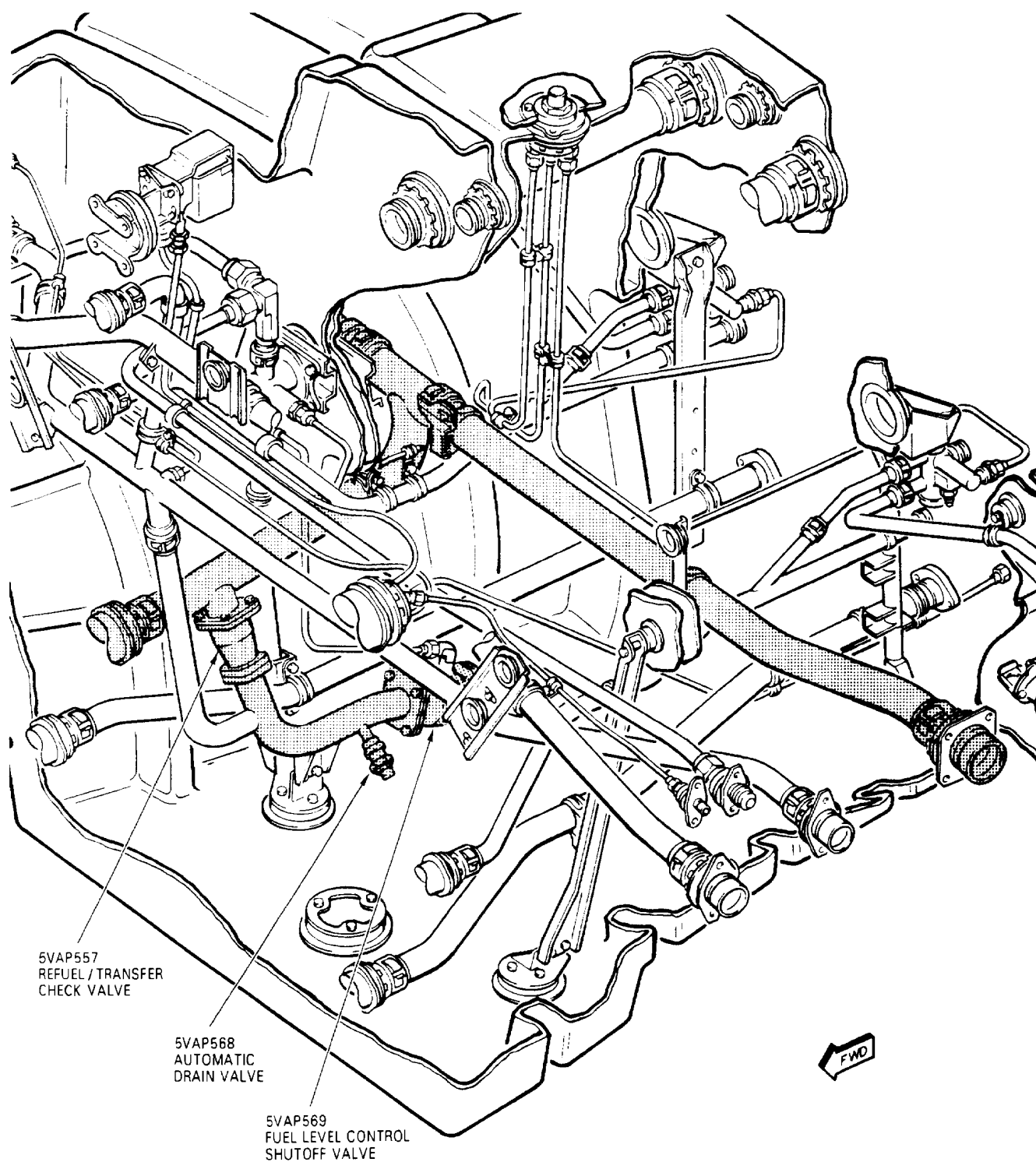


Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 6)



NO. 4 FUEL TANK

Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 7)

03010707

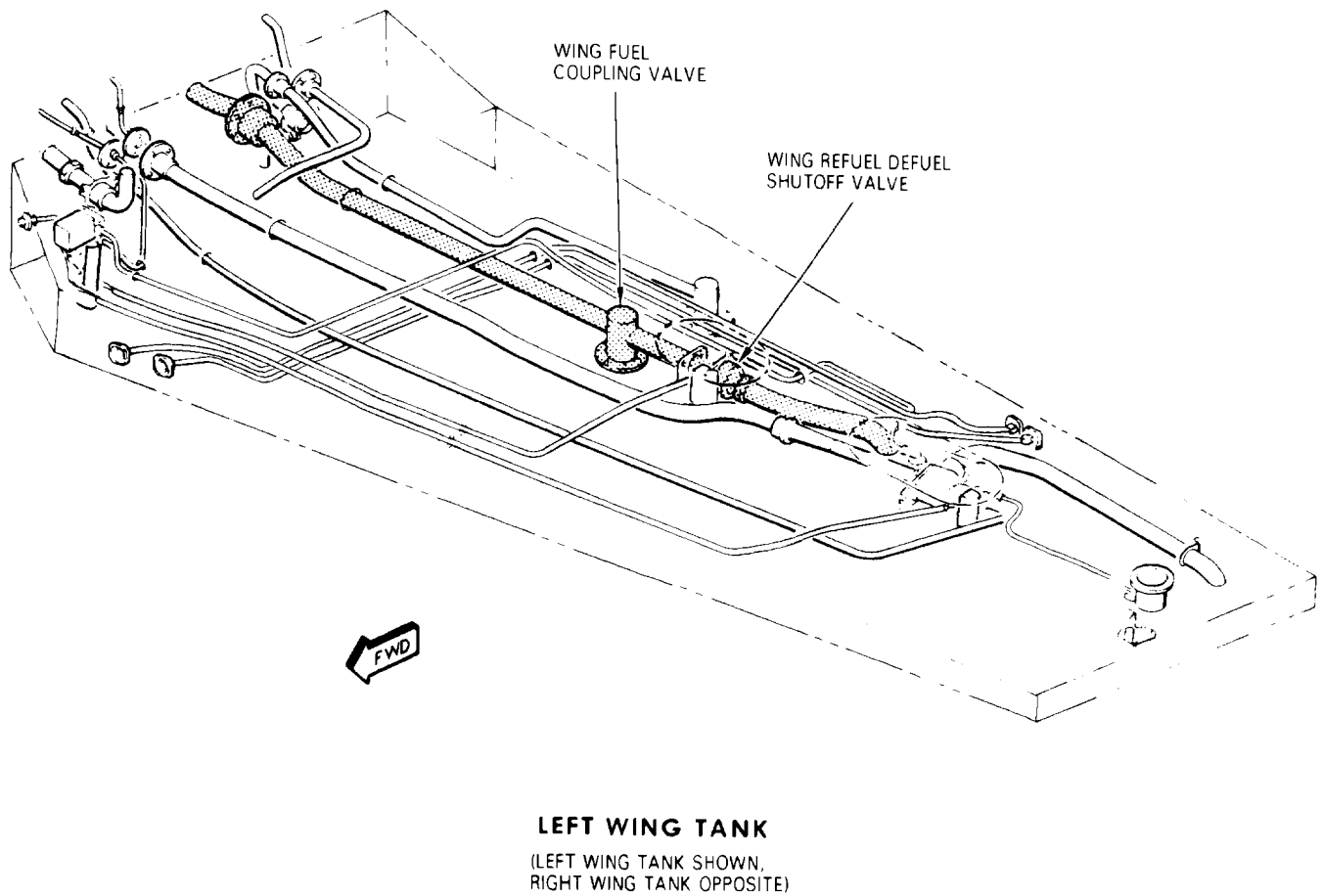
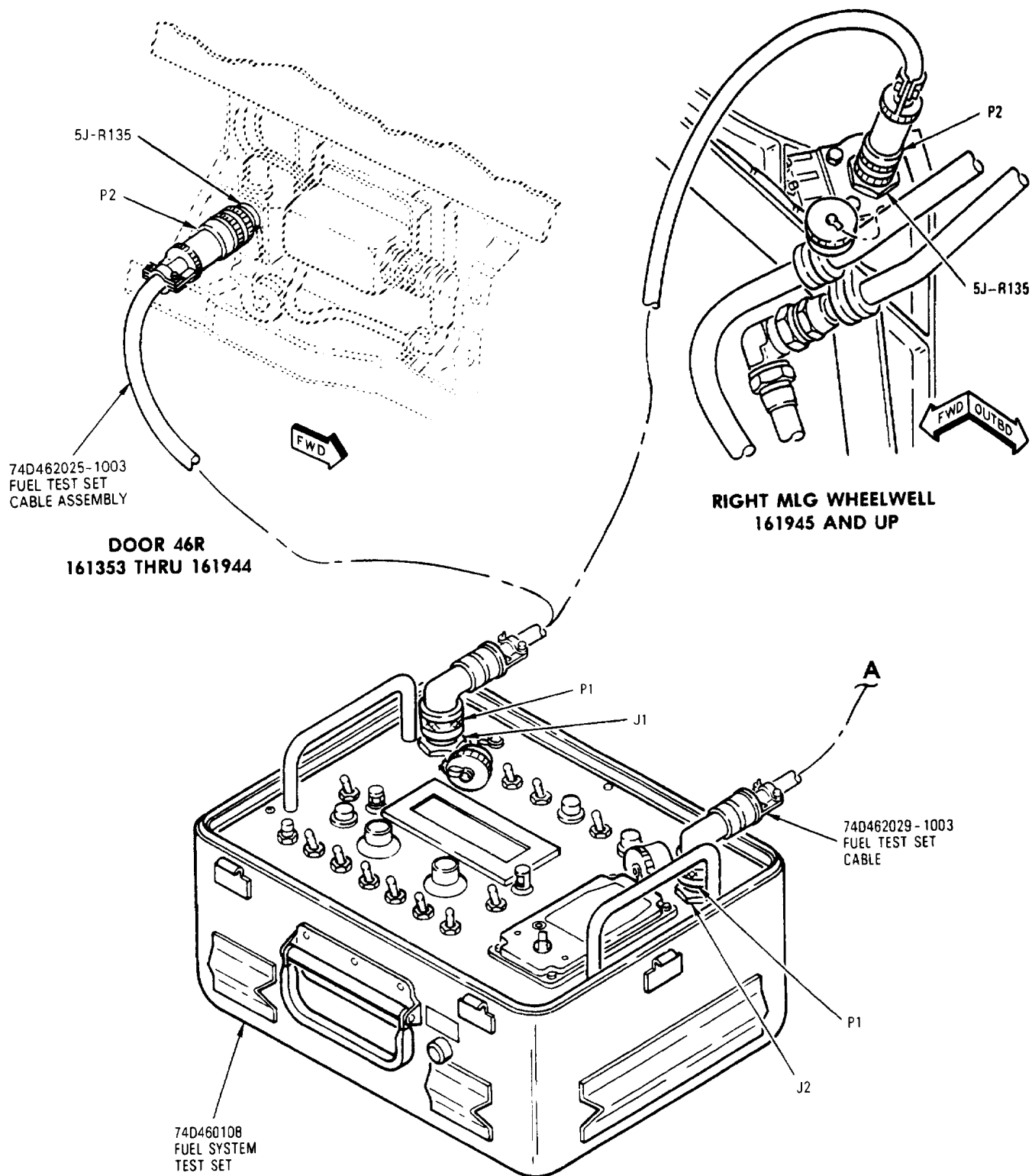
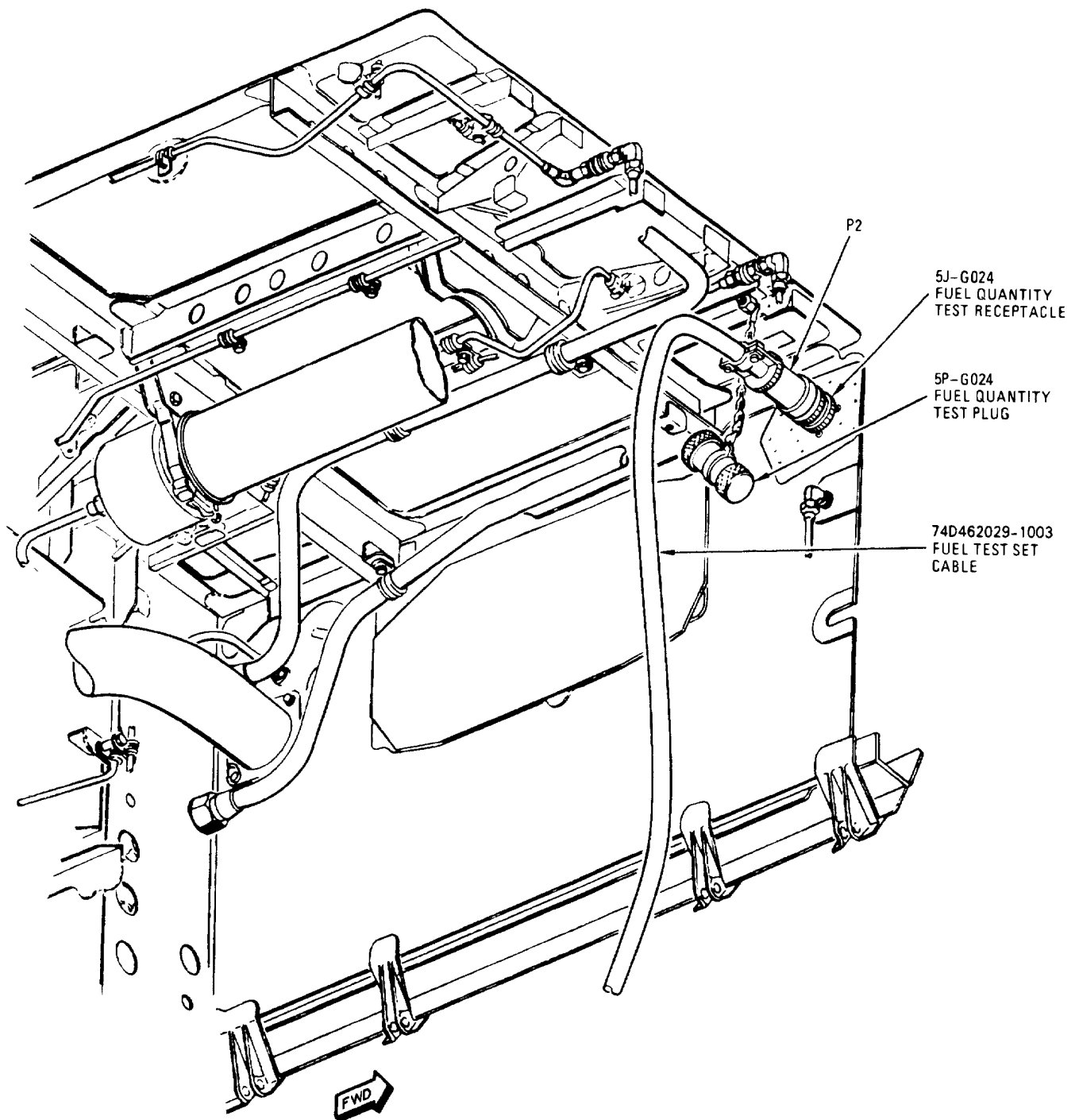


Figure 7. Refuel/Defuel System Pressure Test (Internal Tanks) (Sheet 8)



03010801

Figure 8. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 1 of 2)

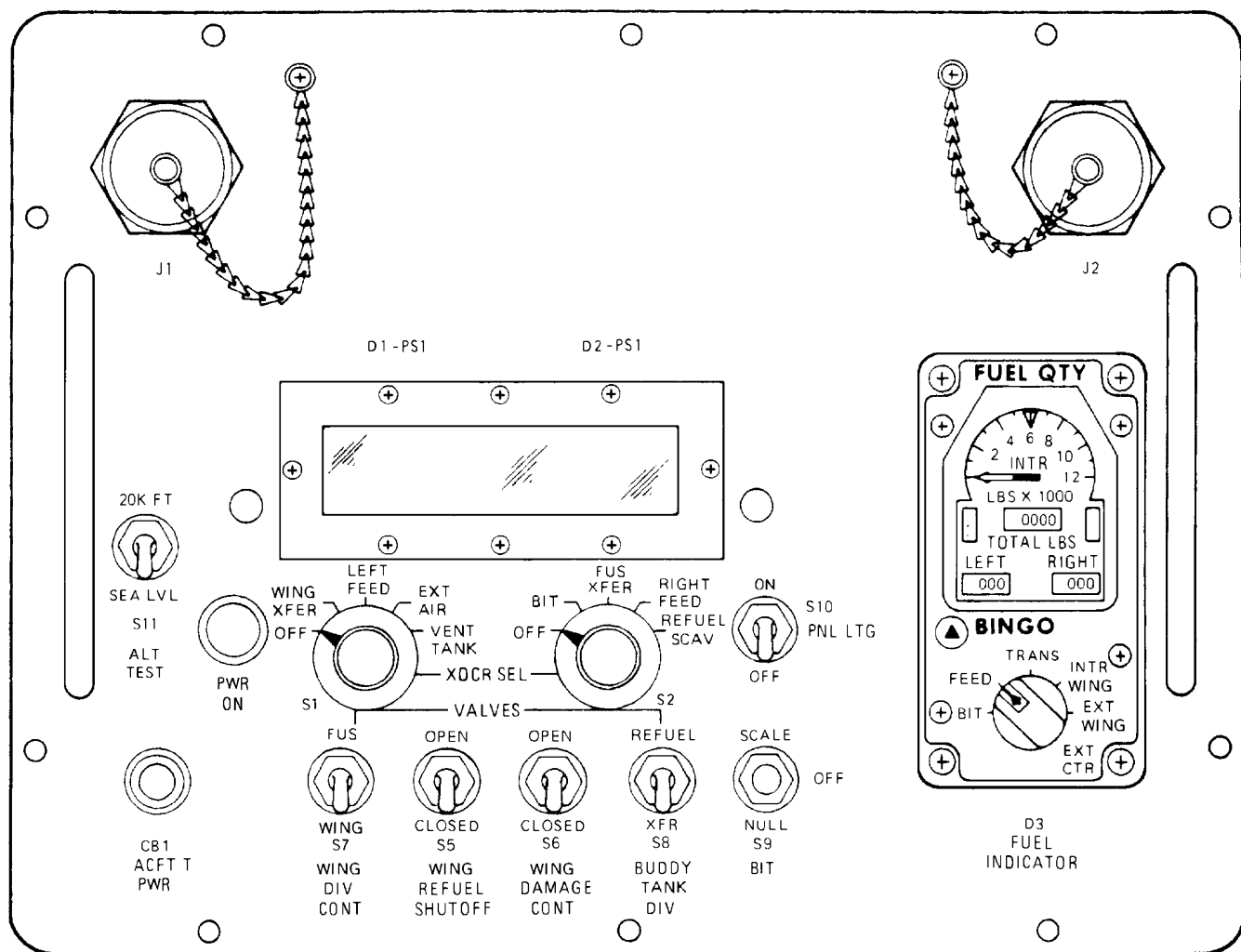


A

NOSE WHEELWELL, LEFT SIDE

03010802

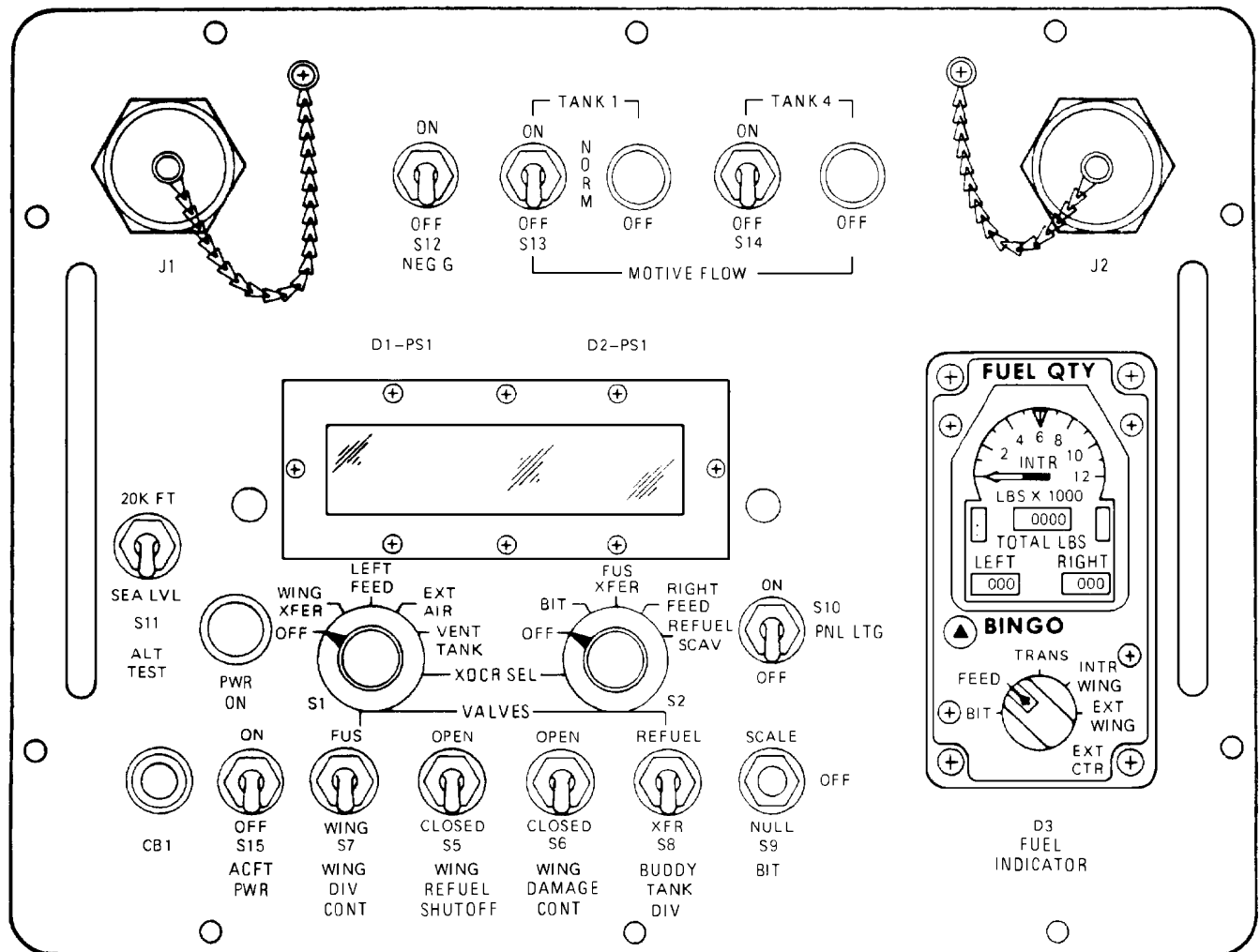
Figure 8. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 9. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 9. Fuel System Test Set Controls and Displays (Sheet 2)

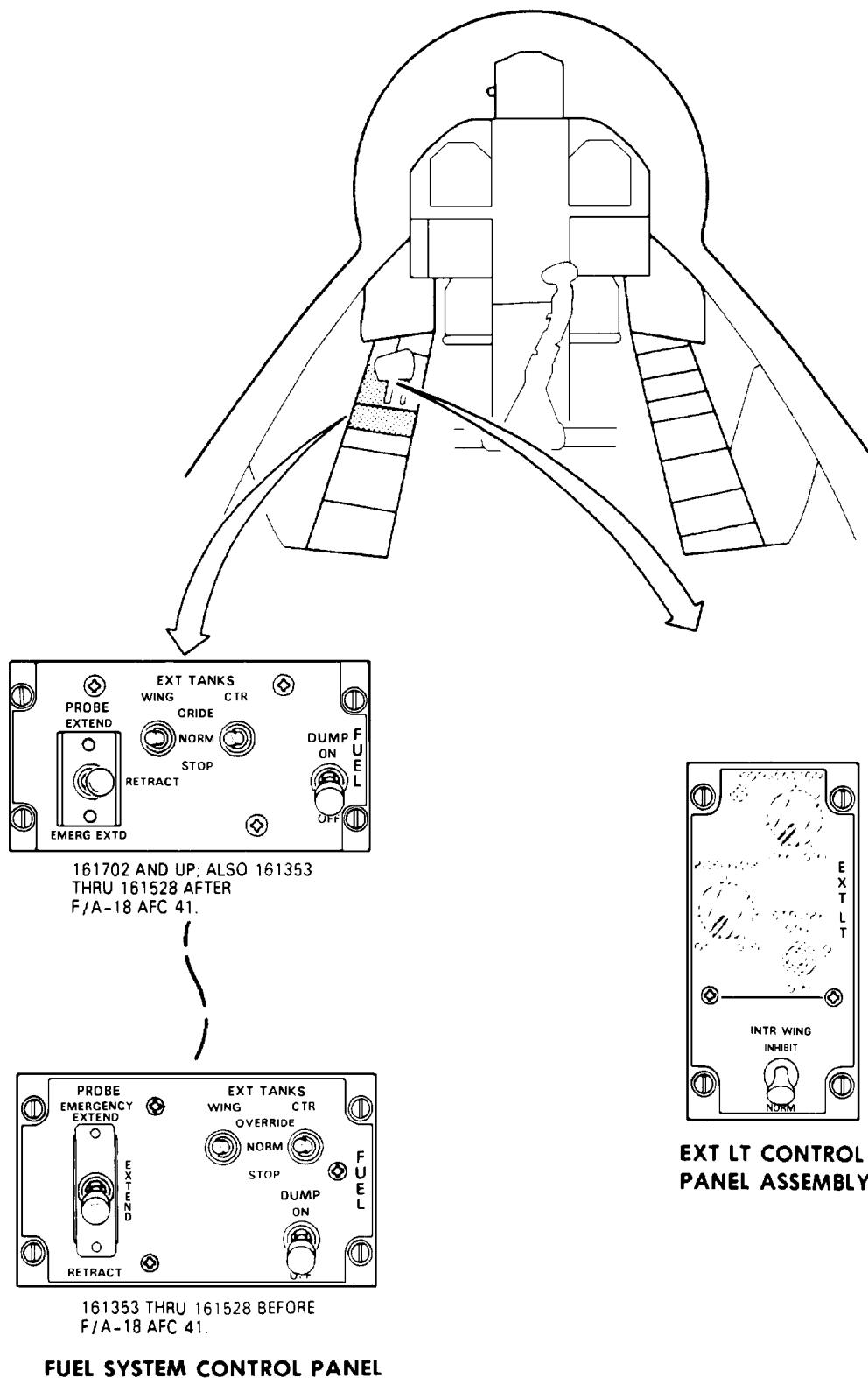
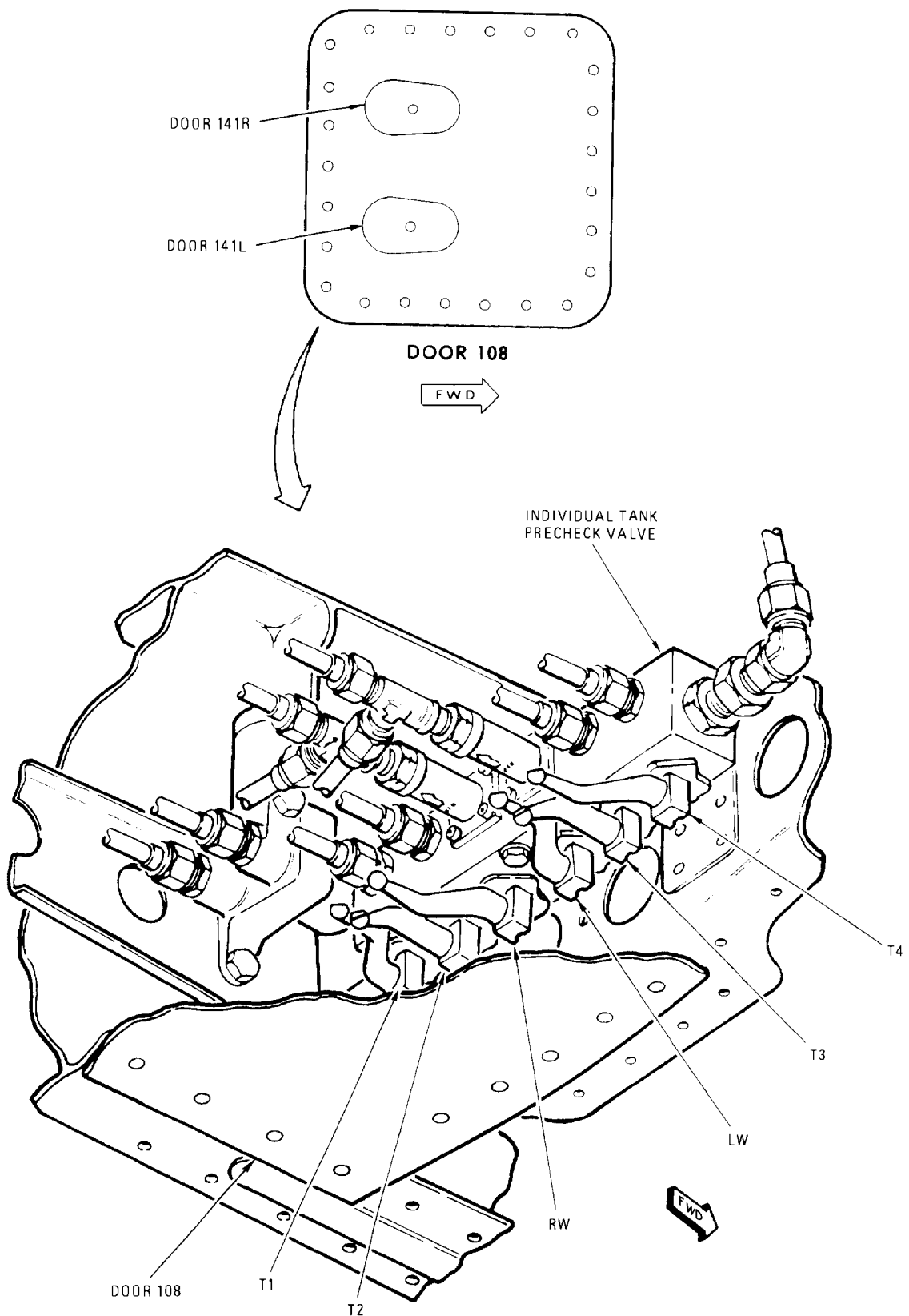


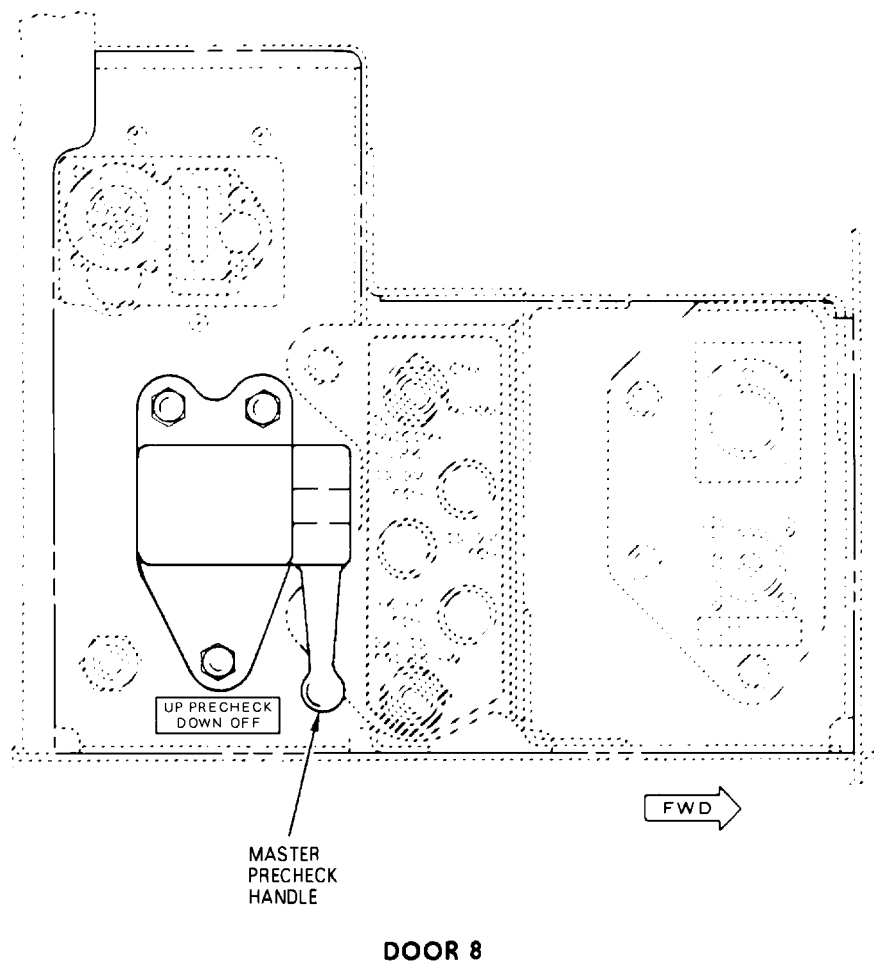
Figure 10. Individual Fuel Tank High Level Shutoff Test Component Locator
(Sheet 1 of 3)

03011001



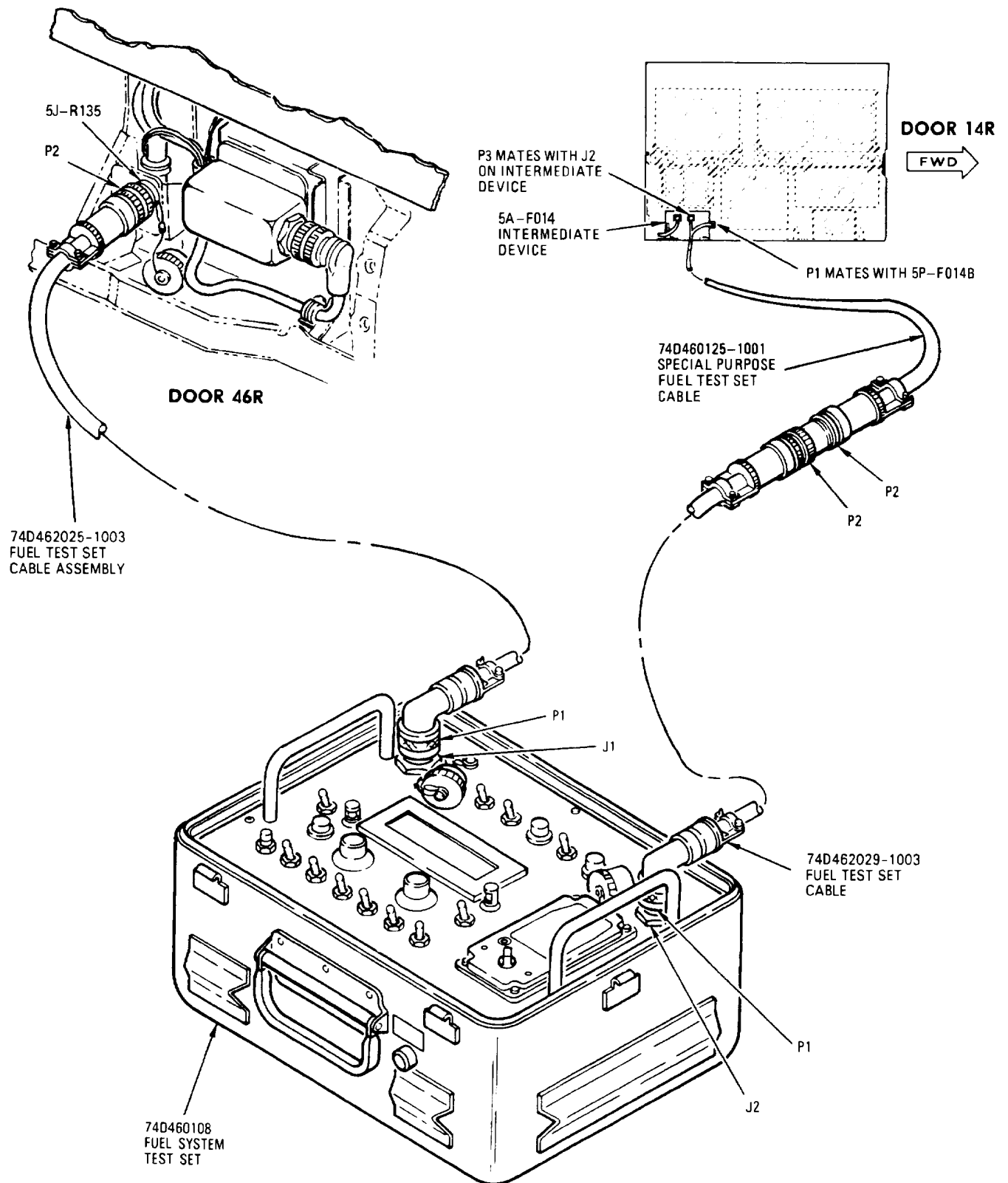
03011002

Figure 10. Individual Fuel Tank High Level Shutoff Test Component Locator (Sheet 2)



03011003

Figure 10. Individual Fuel Tank High Level Shutoff Test Component Locator (Sheet 3)



**Figure 11. Fuel System Test Set Hookup, 161353 THRU 161359
BEFORE F/A-18 AFC 53**

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
REFUEL/DEFUEL SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Refuel/Defuel System Component Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—

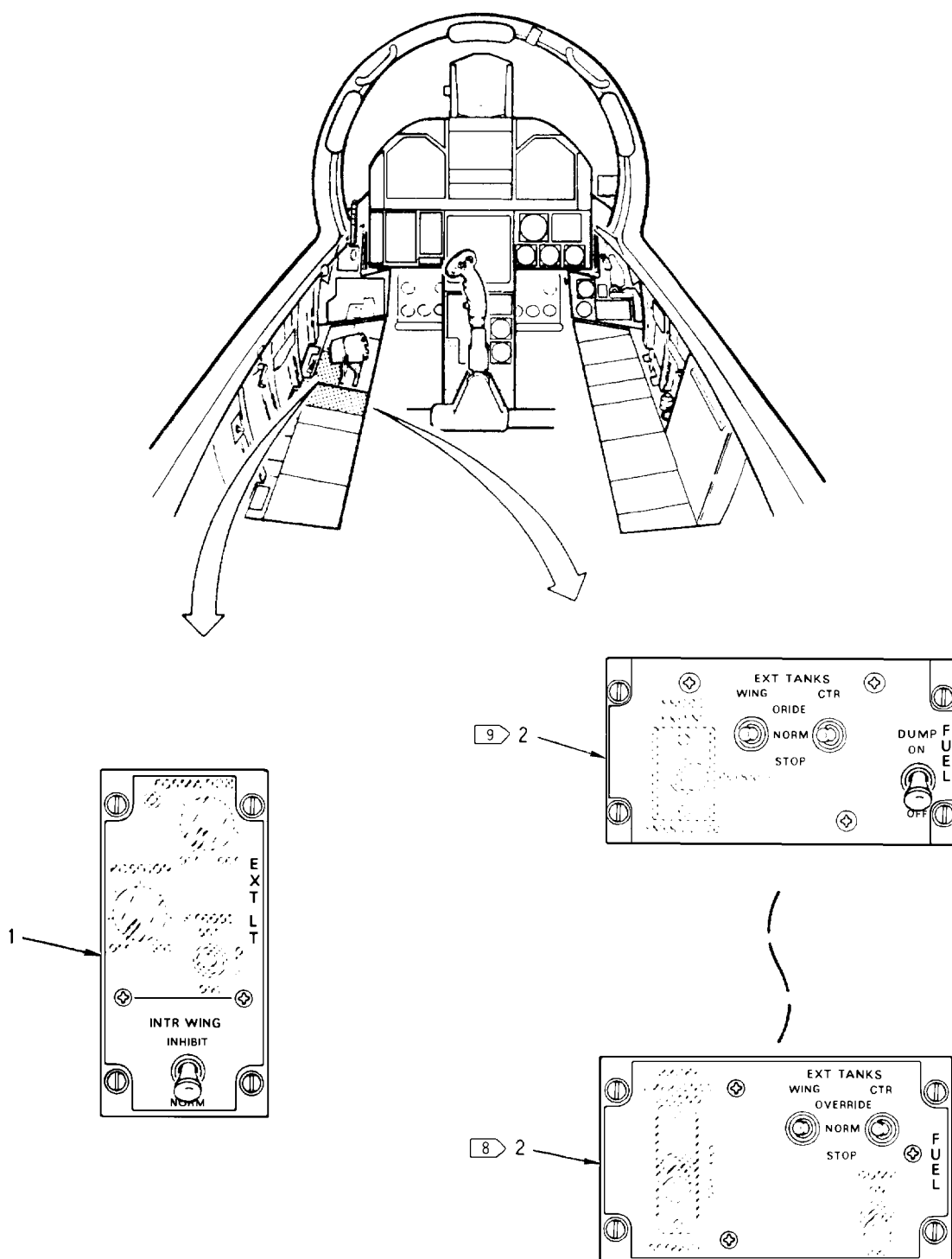
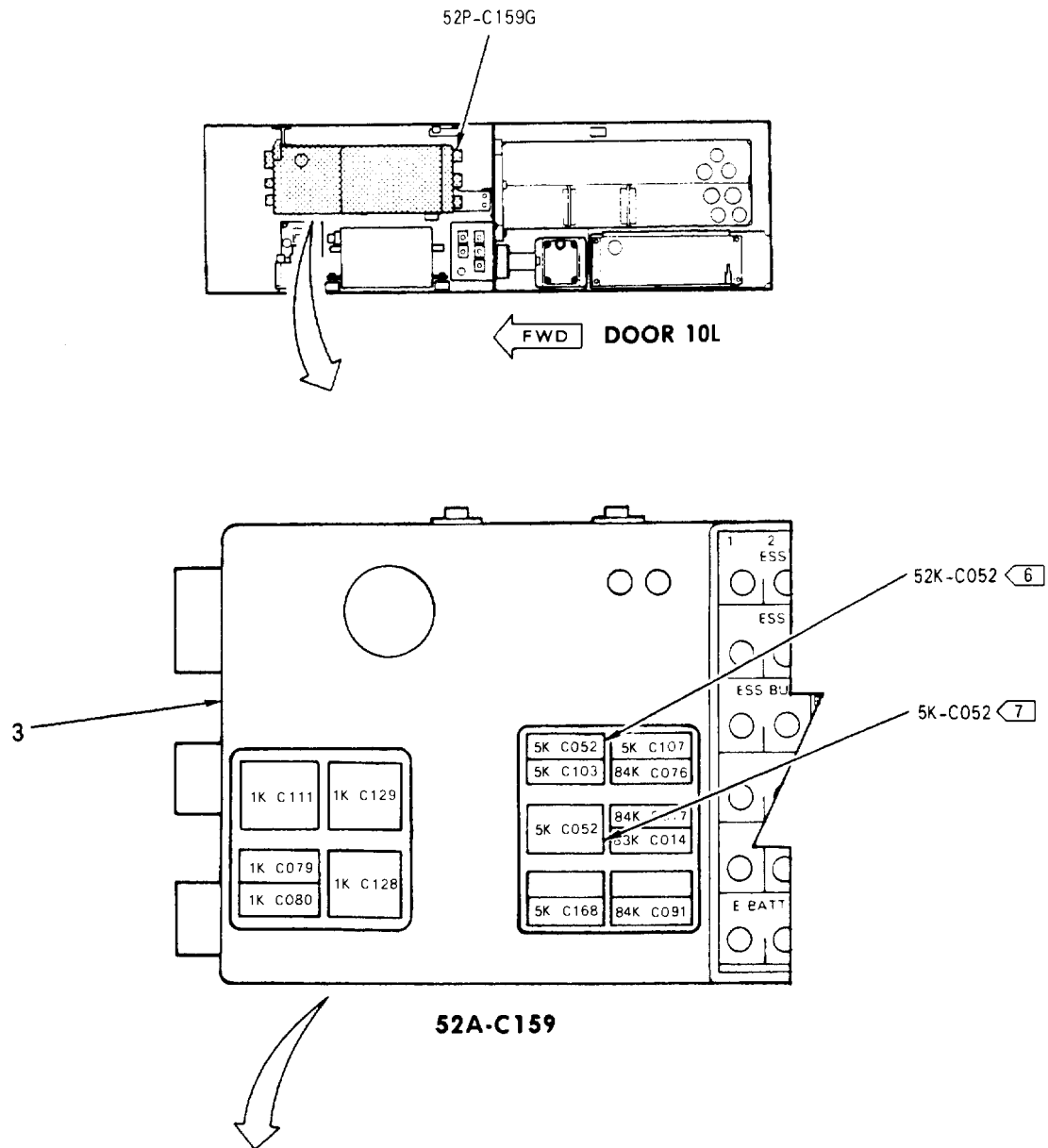


Figure 1. Refuel/Defuel System Component Locator (Sheet 1 of 14)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A7	5C8C115	WING FUEL	L 28VDC
A8	5C8C016	EXT FUEL TK CONT	L 28VDC
	5K-C052	FUEL LOW LEVEL RELAY NO. 2	
	5K-C107	EXTERNAL TANK REFUEL CONTROL RELAY	

Figure 1. Refuel/Defuel System Component Locator (Sheet 2)

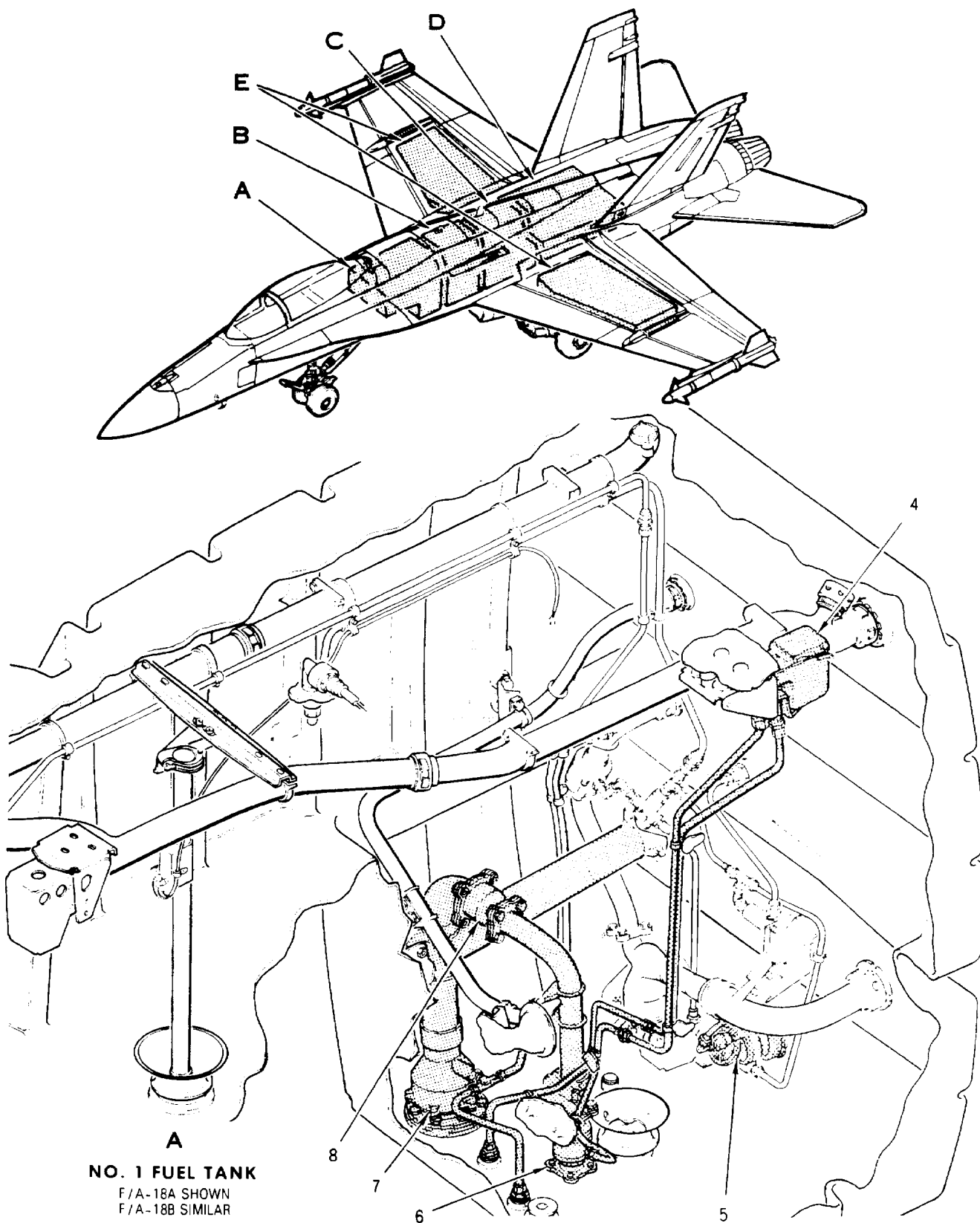


Figure 1. Refuel/Defuel System Component Locator (Sheet 3)

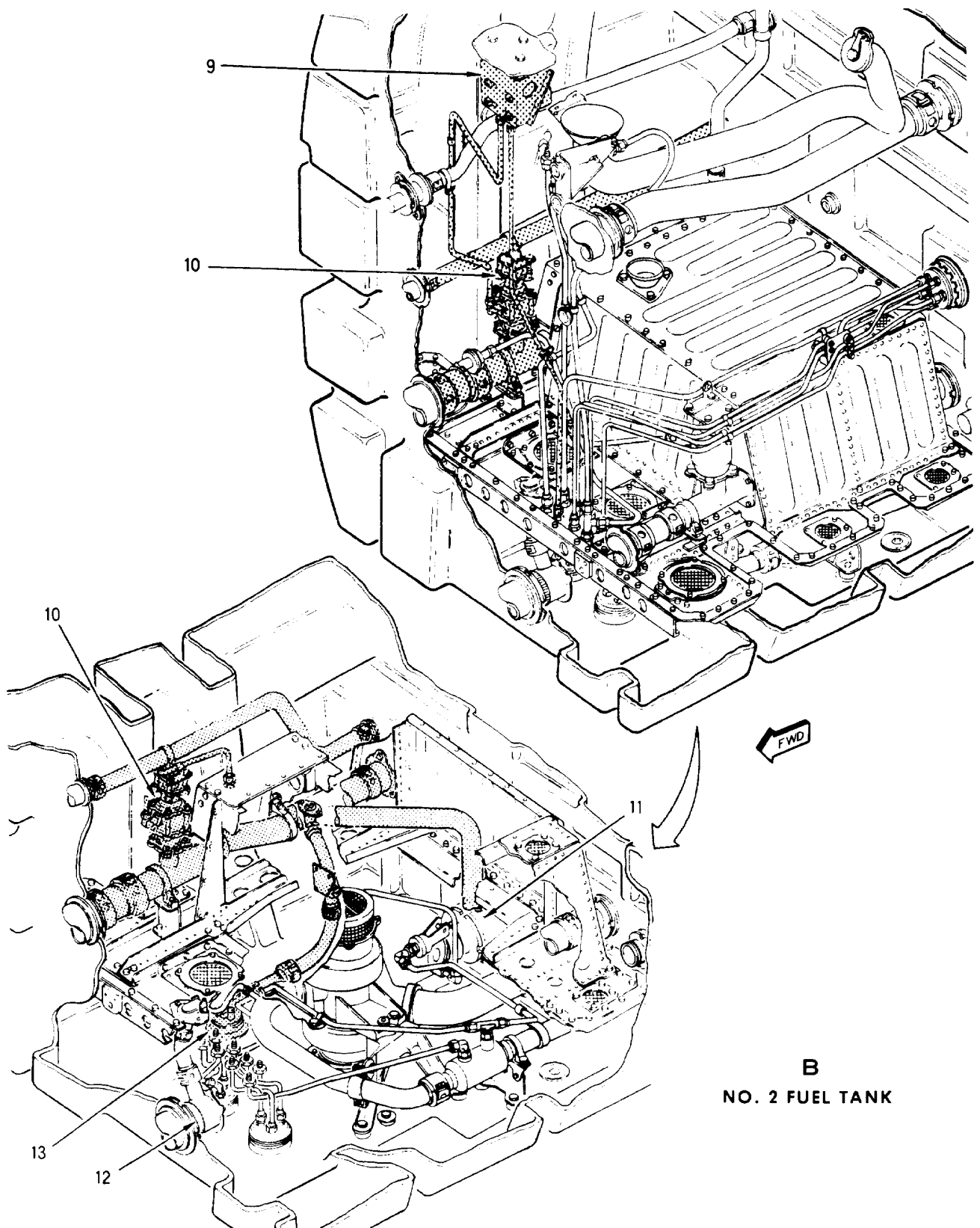


Figure 1. Refuel/Defuel System Component Locator (Sheet 4)

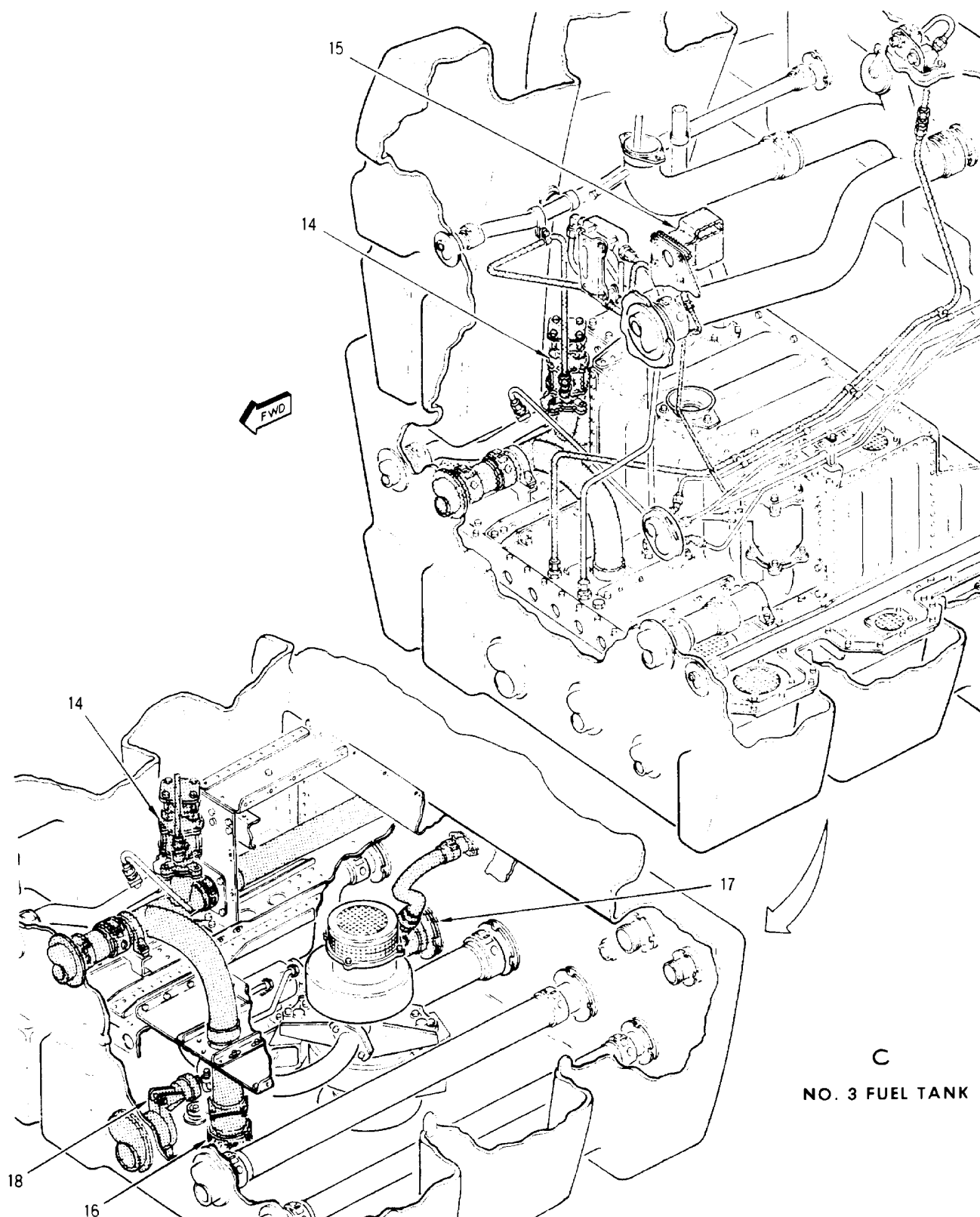
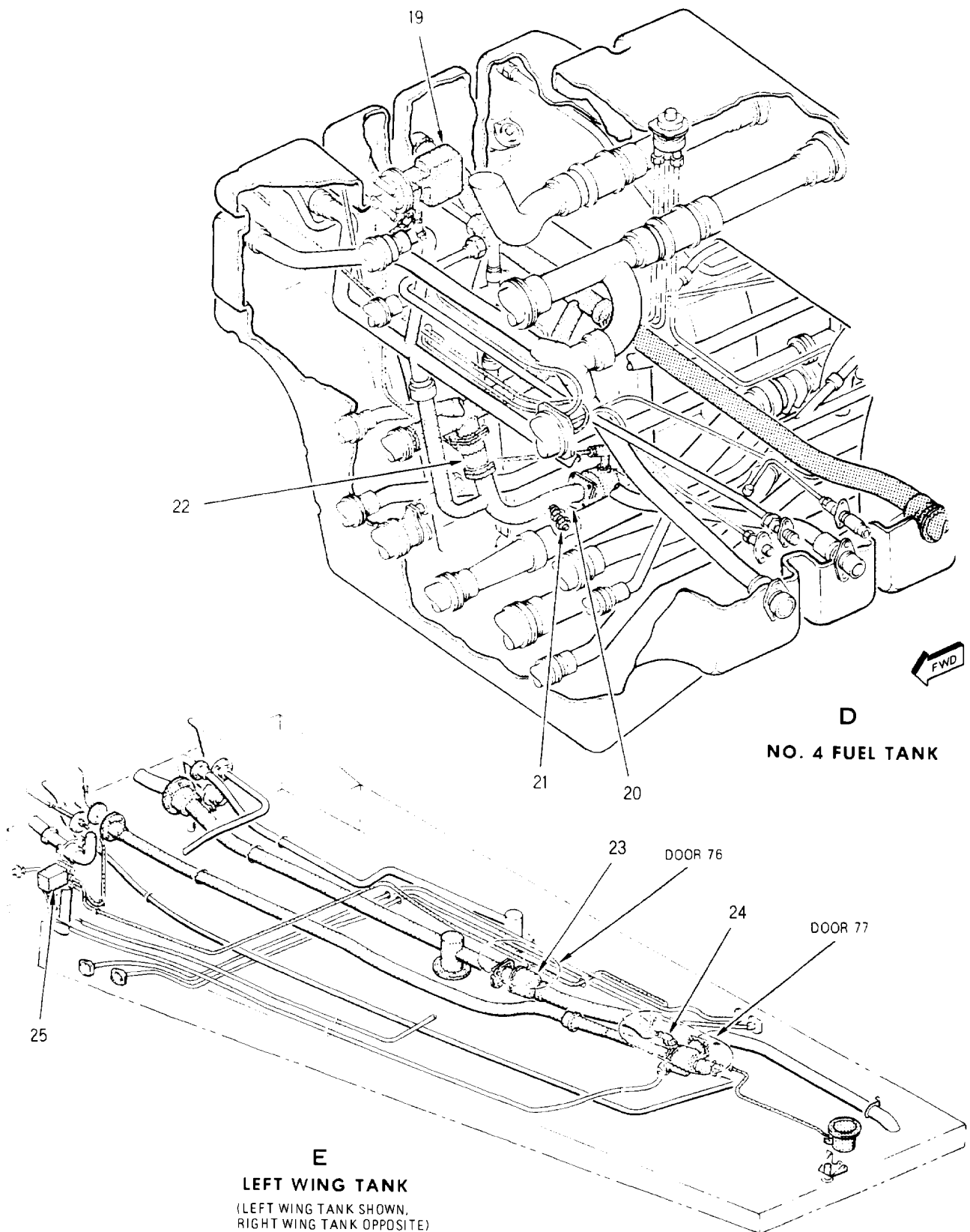


Figure 1. Refuel/Defuel System Component Locator (Sheet 5)



03020106

Figure 1. Refuel/Defuel System Component Locator (Sheet 6)

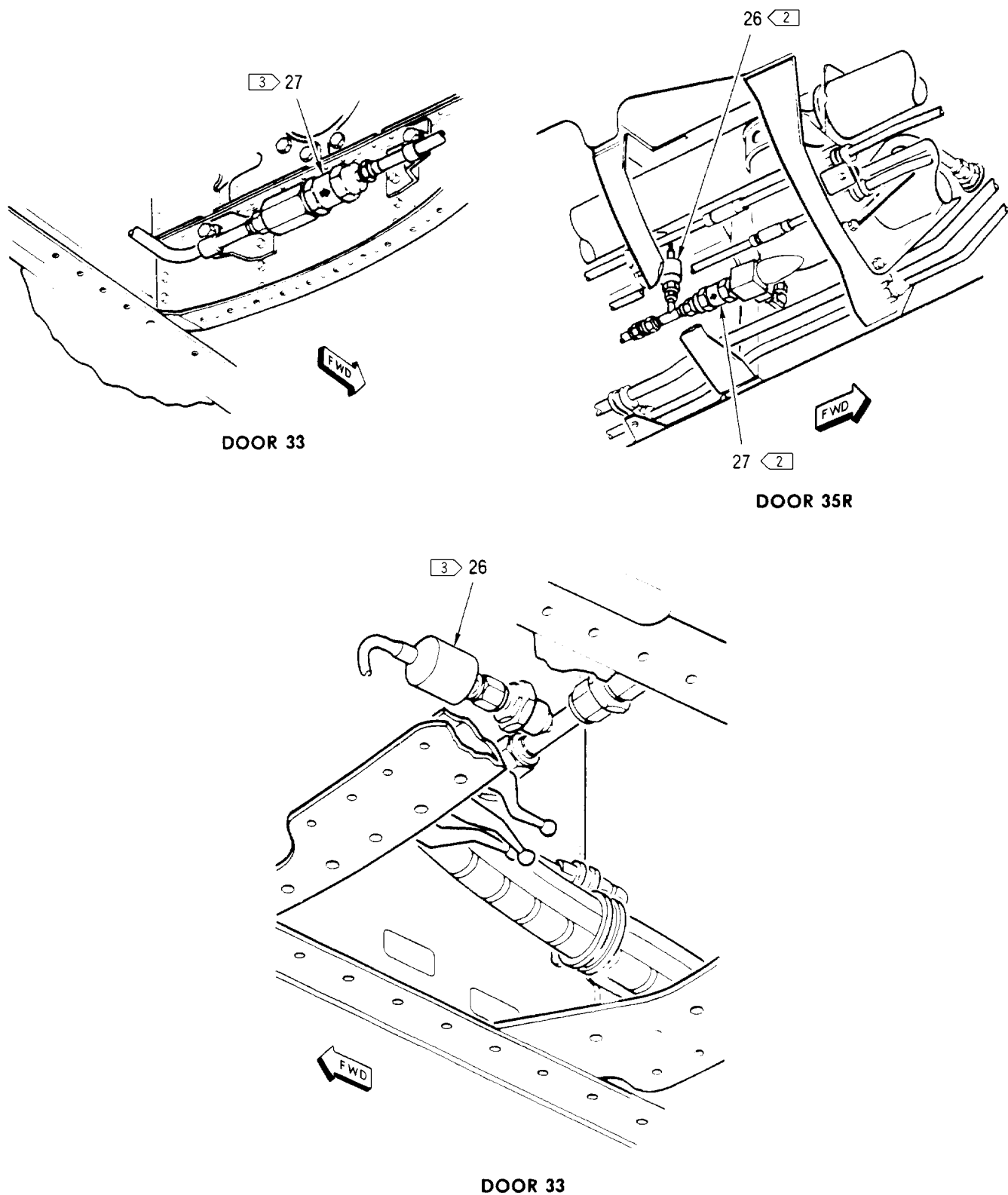


Figure 1. Refuel/Defuel System Component Locator (Sheet 7)

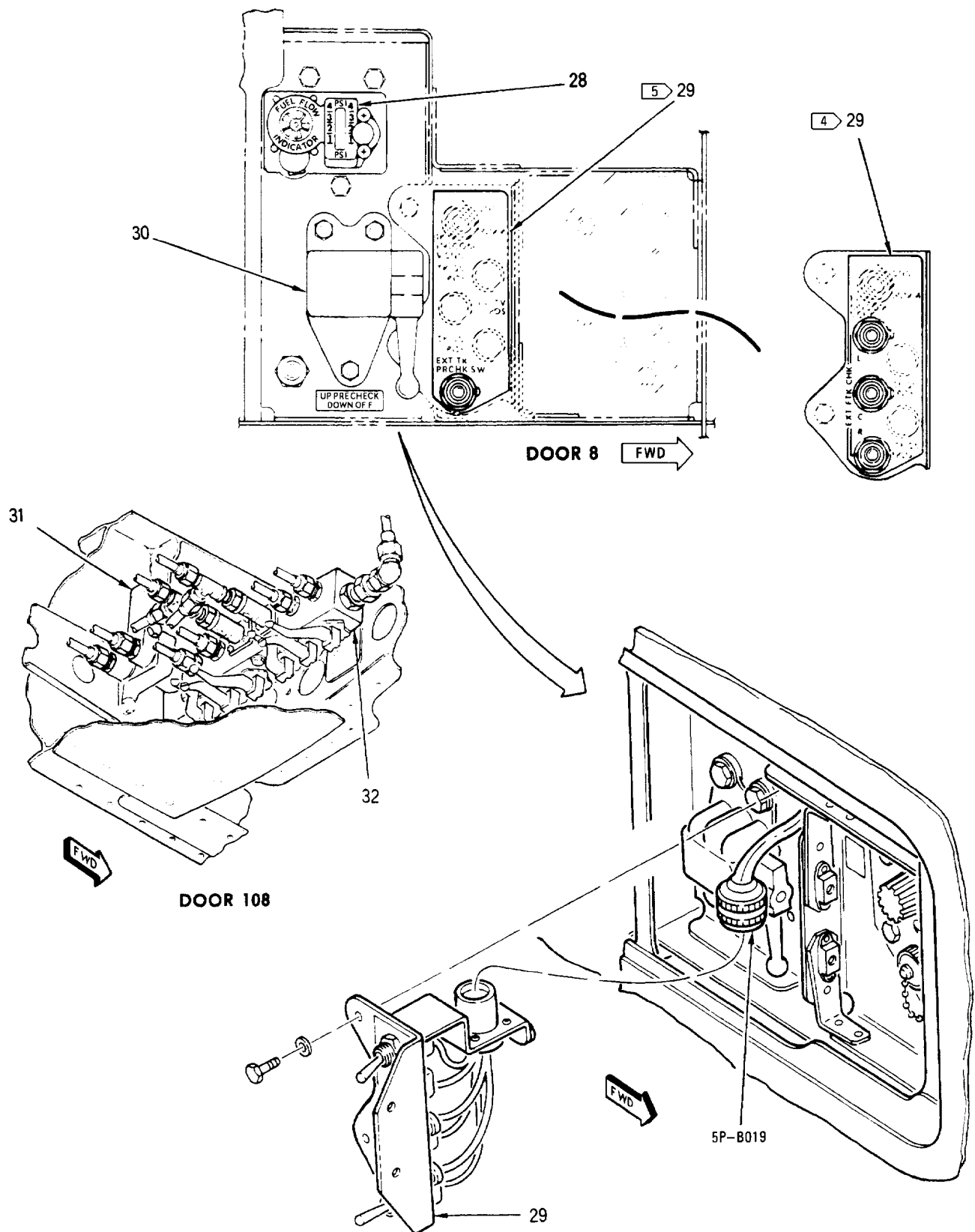
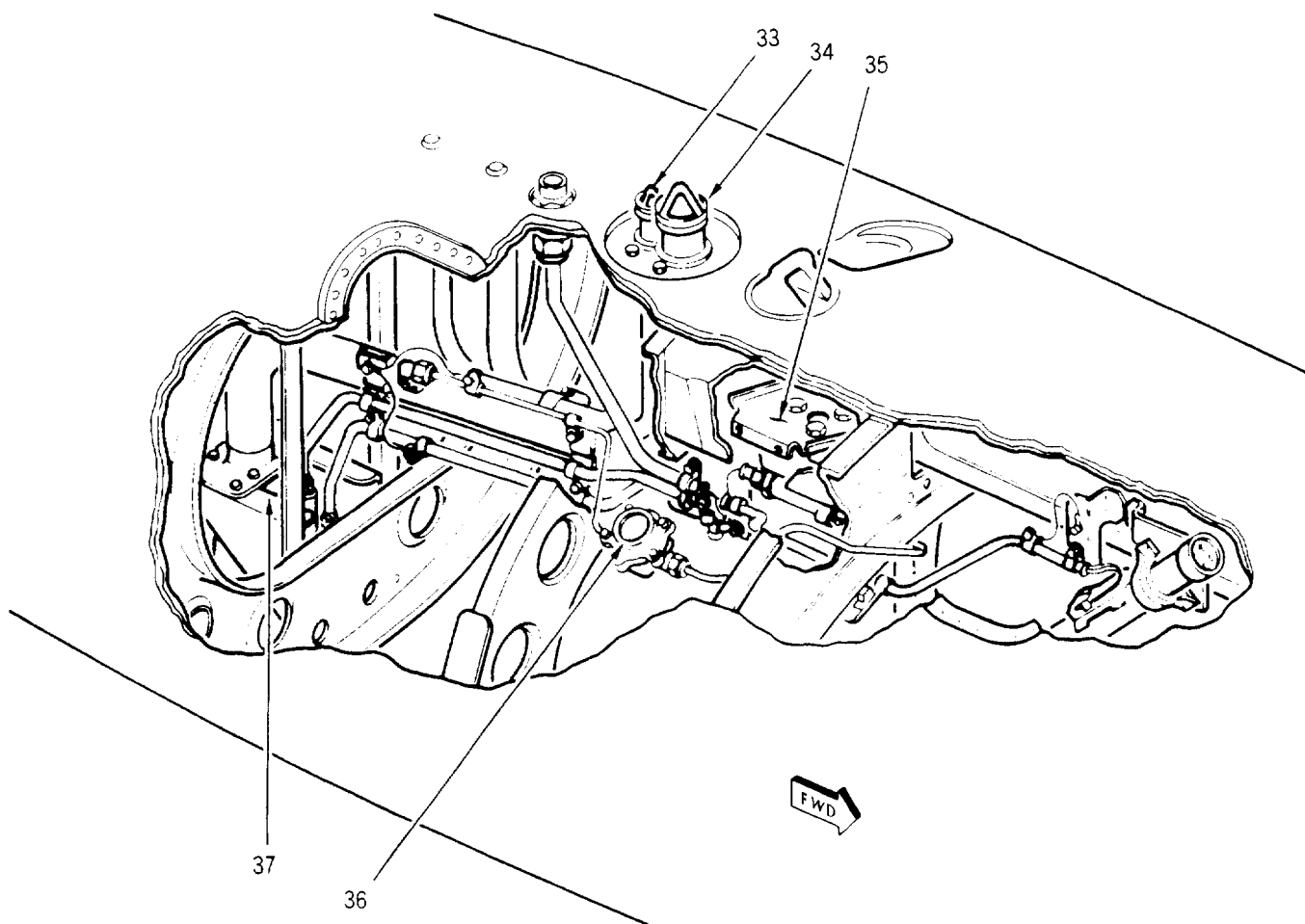
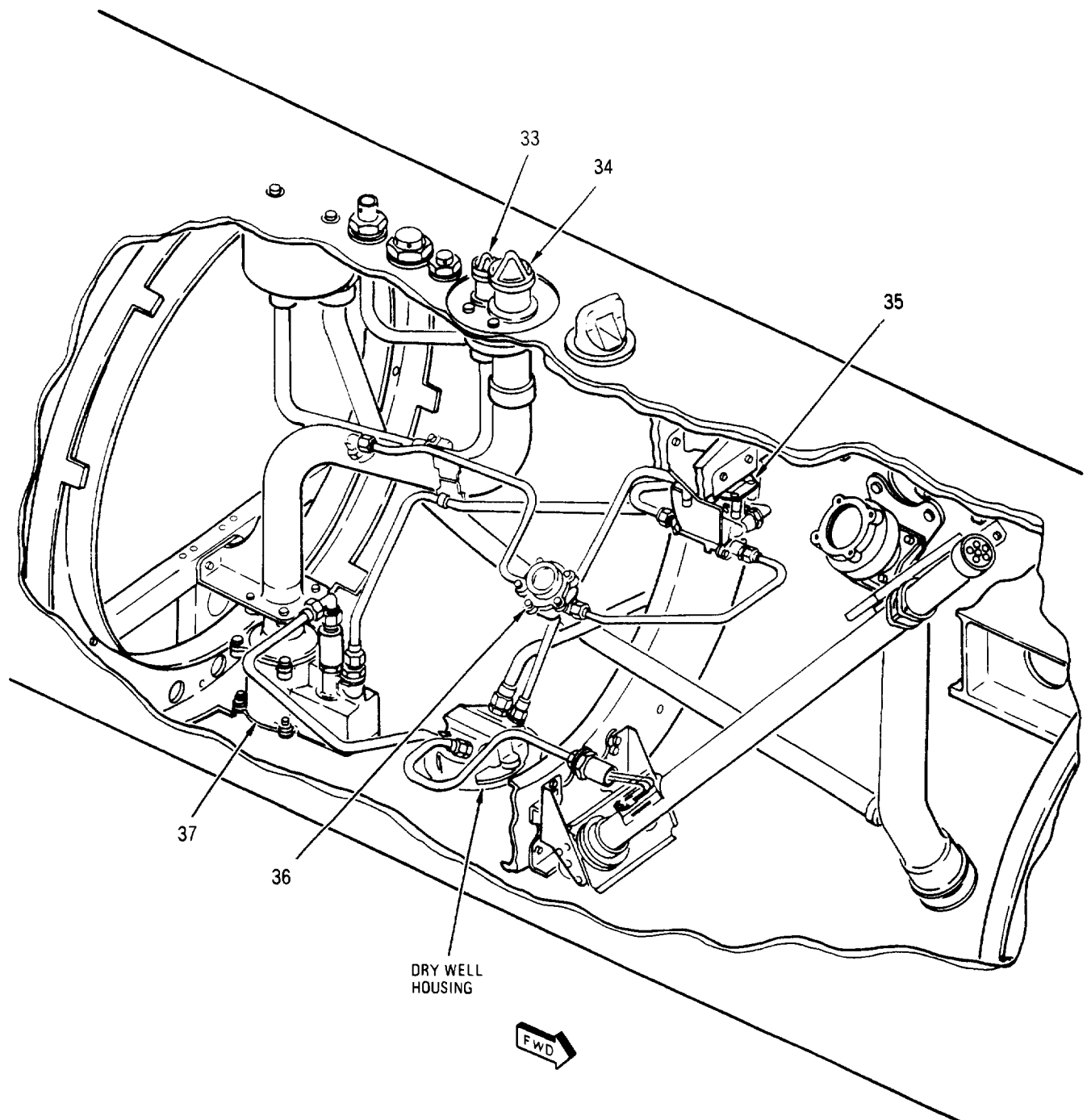


Figure 1. Refuel/Defuel System Component Locator (Sheet 8)



AIRCRAFT FUEL TANK FPU-6/A (ELLIPTICAL)

Figure 1. Refuel/Defuel System Component Locator (Sheet 9)



AIRCRAFT FUEL TANK FPU-8/A(CYLINDRICAL)

Figure 1. Refuel/Defuel System Component Locator (Sheet 10)

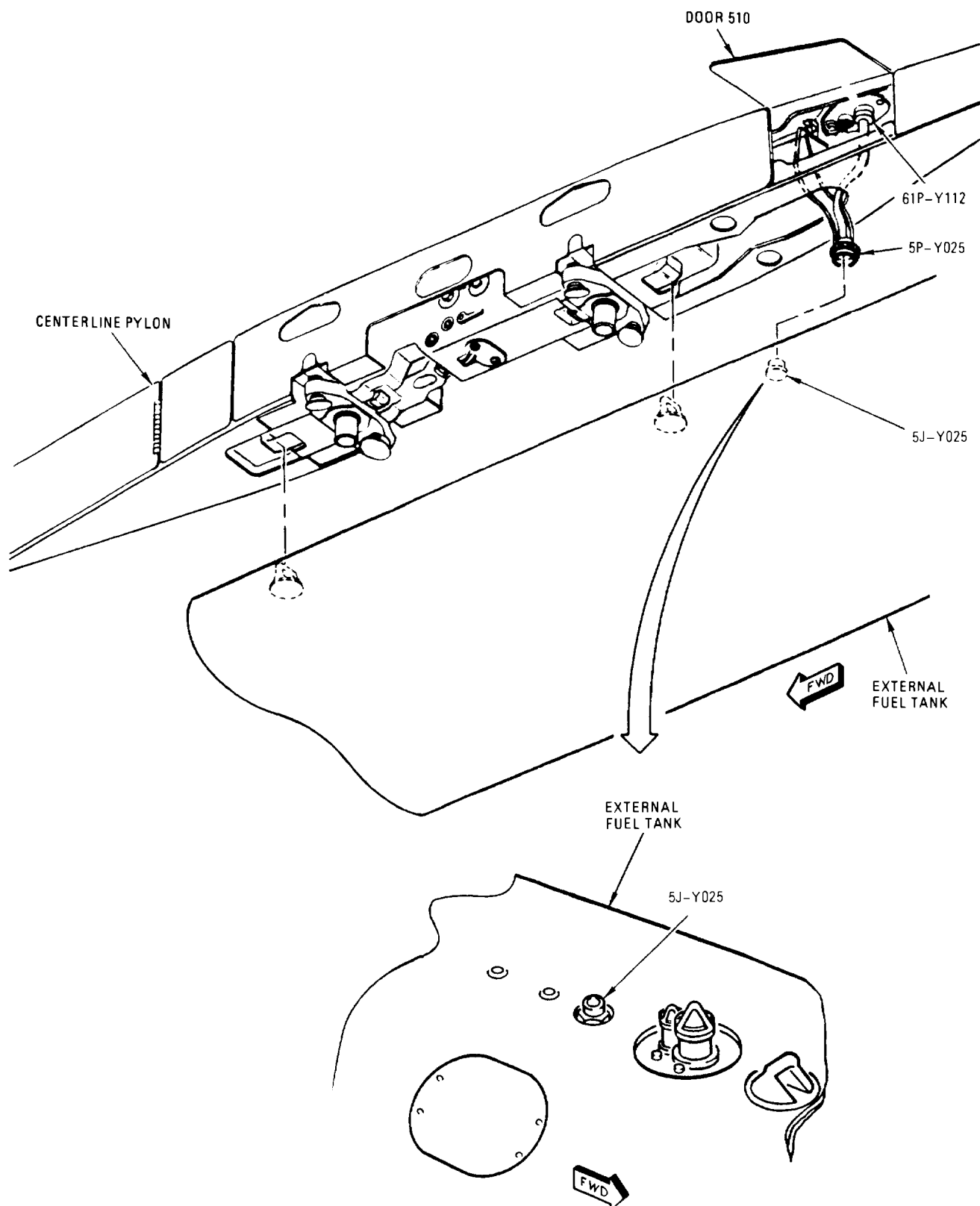


Figure 1. Refuel/Defuel System Component Locator (Sheet 11)

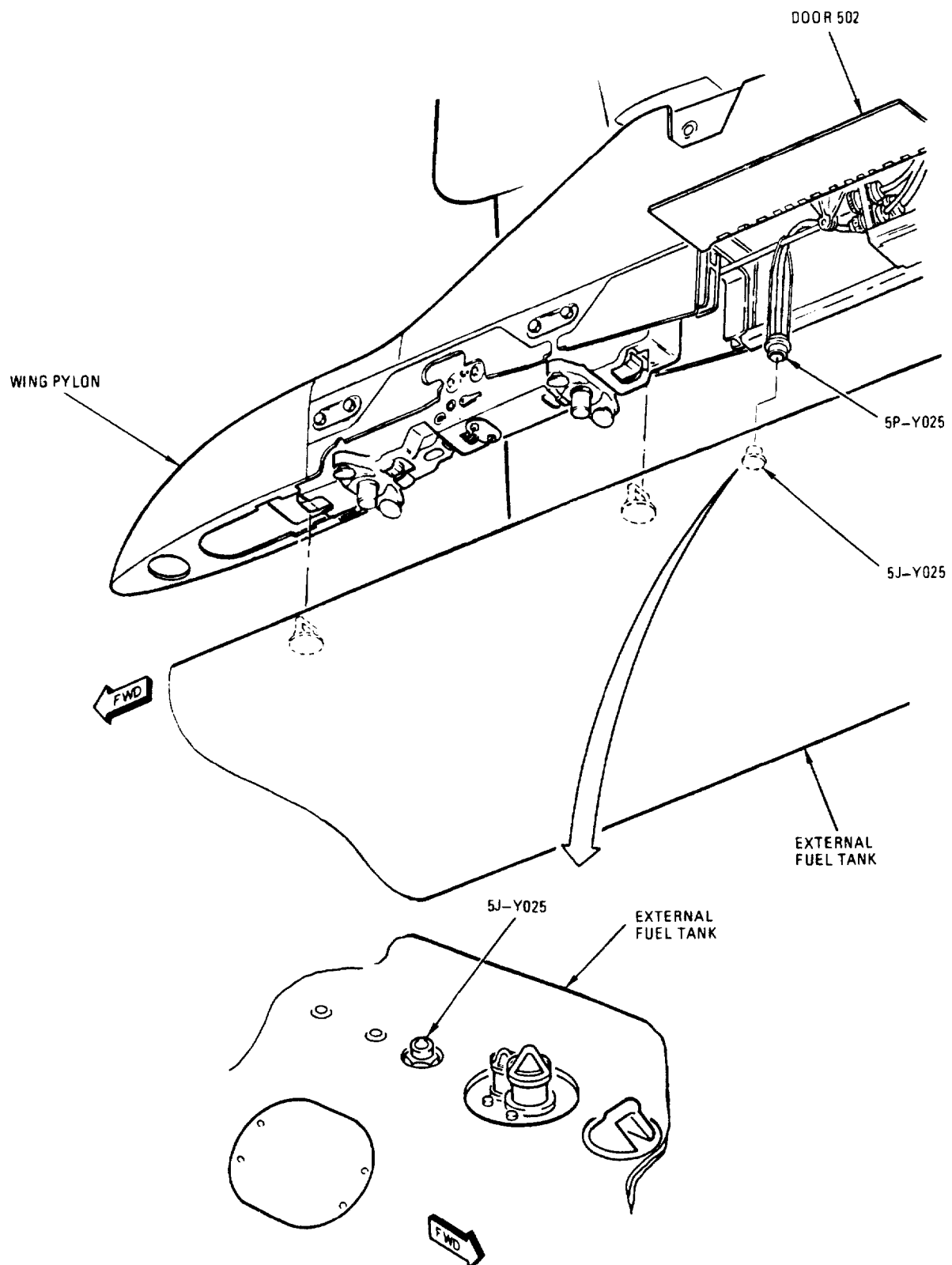


Figure 1. Refuel/Defuel System Component Locator (Sheet 12)

Nomenclature	Index No.	Ref Des
DEFUEL VALVE	16	5VAP521
EXTERNAL FUEL TANK LEVEL CONTROL PILOT VALVE	35	5L-Y060
MANUAL-PRECHECK VALVE	36	5VAY631
REFUEL/TRANSFER SHUTOFF VALVE	37	5L-Y061
EXT LT CONTROL PANEL ASSEMBLY INTR WING SWITCH	1	52A-H091 5S-H026
FUEL CHECK PANEL	29	5A-B019
4 L EXT FTK CHK SWITCH		5S-B022
4 C EXT FTK CHK SWITCH		5S-B021
4 R EXT FTK CHK SWITCH		5S-B020
5 EXT TK PRCHK SW		
FUEL SYSTEM CONTROL PANEL EXT TANKS-CTR SWITCH EXT TANKS-WING SWITCH	2	5A-H027 5S-H018 5S-H017
INDIVIDUAL TANK PRECHECK VALVE	32	5VAF627
MASTER PRECHECK VALVE	30	5VAD624
NO. 1 FUEL TANK FUEL LEVEL CONTROL SHUTOFF VALVE	6	5VAP541
NO. 1 FUEL TANK HIGH LEVEL PILOT VALVE	4	5VAP539
NO. 1 FUEL TANK PRESSURE OPERATED INTERCONNECT VALVE	5	5VAP538 4 5S-E172 5
NO. 1 FUEL TANK REFUEL/TRANSFER CHECK VALVE	8	5VAP532
NO. 2 FUEL TANK FUEL LEVEL CONTROL HANDLE SHUTOFF VALVE	10	5VAP596
NO. 2 FUEL TANK HIGH LEVEL PILOT VALVE	9	5VAP594
NO. 2 FUEL TANK INTERCONNECT CHECK VALVE	12	5VAP600
NO. 2 FUEL TANK PRESSURE OPERATED INTERCONNECT VALVE	11	5S-R132
NO. 3 FUEL TANK FUEL LEVEL CONTROL SHUTOFF VALVE	14	5VAP610
NO. 3 FUEL TANK HIGH LEVEL PILOT VALVE	15	5VAP583
NO. 3 FUEL TANK INTERCONNECT CHECK VALVE	17	5VAP608

Figure 1. Refuel/Defuel System Component Locator (Sheet 13)

Nomenclature	Index No.	Ref Des
NO. 3 FUEL TANK PRESSURE OPERATED INTERCONNECT VALVE	18	5S-R131
NO. 4 FUEL TANK AUTOMATIC DRAIN VALVE	21	5VAP568
NO. 4 FUEL TANK FUEL LEVEL CONTROL SHUTOFF VALVE	20	5VAP569
NO. 4 FUEL TANK HIGH LEVEL PILOT VALVE	19	5VAP556
NO. 4 FUEL TANK REFUEL TRANSFER CHECK VALVE	22	5VAP557
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	3	52A-C159
PYLON AIR PROBE	33	5VAY642
PYLON FUEL PROBE	34	5VAY637
REFUEL/DEFUEL SHUTOFF VALVE	7	5VAP533
REFUEL SCAVENGE LINE PRESSURE TRANSDUCER	26	5MTF140
REFUELING MANIFOLD SCAVENGE JET EJECTOR	13	5BAP598
SCAVENGE CONTROL VALVE	27	5VAD622
TANK PRESSURE/FUEL FLOW INDICATOR	28	5DSD625
WING HIGH LEVEL REFUEL/DEFUEL PILOT VALVE LEFT RIGHT	25	5VAU573 5VAV574
WING LOW LEVEL REFUEL/DEFUEL PILOT VALVE LEFT RIGHT	24	5VAU551 5VAV552
WING REFUEL/DEFUEL SHUTOFF VALVE LEFT RIGHT	23	5VAU553 5VAV554
WING REFUEL LOCKOUT VALVE	31	5L-F116

LEGEND

1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.









-  161353 THRU 161528.
-  161702 AND UP.
-  161353 THRU 161761 BEFORE F/A-18 AFC 39.
-  161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39.
-  161353 THRU 161519.
-  161520 AND UP.
-  161353 THRU 161528 BEFORE F/A-18 AFC 41.
-  161702 AND UP, ALSO 161353 THRU 161528 AFTER F/A-18 AFC 41.

Figure 1. Refuel/Defuel System Component Locator (Sheet 14)

THIS PAGE INTENTIONALLY LEFT BLANK.

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST
INFLIGHT REFUELING SYSTEM**

Reference Material

Line Maintenance Procedures A1-F18AC-LMM-000
 Line Maintenance Access Doors A1-F18AC-LMM-010
 Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Probe Cycle Test, Table 1	1
Probe Leak Test, Table 2	4

Record of Applicable Technical Directives

None

Table 1. Probe Cycle Test

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">System Required Components</p> <p style="text-align: center;">All system components installed.</p> <p style="text-align: center;">Related Systems Required</p> <p style="text-align: center;">Electrical System</p> <p style="text-align: center;">Hydraulic System</p> <p style="text-align: center;">Landing Gear and Related System</p> <p style="text-align: center;">Secondary Power System</p> <p style="text-align: center;">Air Data Computer System</p> <p style="text-align: center;">Lighting System</p> <p style="text-align: center;">Power Plant and Related System</p> <p style="text-align: center;">Support Equipment Required</p> <p style="text-align: center;">None</p>		

Table 1. Probe Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Component locations are shown in WP006 00. Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this test.</p>		
<p>1. PREPARATION.</p> <p>a. On FUEL system control panel, make sure PROBE control switch is set to RETRACT.</p> <p>b. Apply electrical and hydraulic power (A1-F18AC-LMM-000).</p> <p>c. On the throttle quadrant, set the exterior lights switch to on.</p> <p>d. Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).</p> <p>e. On GND PWR control panel assembly, set and hold for 3 seconds 2 switch to B ON (A1-F18AC-LMM-000).</p> <p>f. Make sure auxiliary power unit (APU) accumulator gage in right MLG wheelwell indicates a minimum of 2900 psi (A1-F18AC-LMM-000).</p> <p>2. TEST. (QA)</p>		
<p align="center">CAUTION</p> <p align="center">To prevent damage to inflight refueling probe, make sure probe area is clear.</p>		
<p>a. Set PROBE control switch to EXTEND.</p>	<p>1. Inflight refueling probe extends.</p>	<p>Refer to WP005 00, table 1.</p>

Table 1. Probe Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
b. Set PROBE control switch to RETRACT.	2. Inflight refueling probe flood-light comes on as probe starts to extend.	Refer to WP005 00, table 2.
	3. PROBE UNLK caution not displayed on cockpit Left Digital Display Indicator IP-1317() after waiting a minimum of 25 seconds.	Do table 5, WP005 00.
	1. Inflight refueling probe flood-light goes off as probe starts to retract.	Replace 5K-E011 IFR light control switch relay (A1-F18AC-420-300, WP035 00).
	2. Inflight refueling probe retracts.	Refer to WP005 00, table 3.
c. Turn off hydraulic power (A1-F18AC-LMM-000). Set PROBE control switch to EMERG EXTD.	3. Inflight refueling probe door closes firmly.	Rig probe door (A1-F18AC-460-300, WP086 00).
	4. PROBE UNLK caution not displayed on cockpit Left Digital Display Indicator IP-1317() after waiting a minimum of 25 seconds.	Do table 6, WP005 00.
	1. Inflight refueling probe door opens smoothly.	Rig probe door (A1-F18AC-460-300, WP088 00).
	2. Inflight refueling probe flood-light comes on as probe starts to extend.	Refer to WP005 00, table 2.
d. Turn on hydraulic power (A1-F18AC-LMM-000). Set PROBE control switch to RETRACT.	3. Inflight refueling probe extends smoothly without binding.	Refer to WP005 00, table 4.
	1. Inflight refueling probe flood-light goes off as probe starts to retract.	Replace 5K-E011 IFR light control switch relay (A1-F18AC-420-300, WP035 00).
	2. Inflight refueling probe retracts smoothly without binding.	Do substeps below:
		(1) Remove internal door NWC in nose wheelwell (A1-F18AC-LMM-010).

Table 1. Probe Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>3. FINAL.</p> <p>a. On the throttle quadrant, set the exterior lights switch to off.</p> <p>b. Turn off cockpit Digital Display Indicator IP-1317() (A1-F18AC-LMM-000).</p> <p>c. Remove hydraulic and electrical power (A1-F18AC-LMM-000).</p>	<p>3. Inflight refueling probe door closes firmly.</p>	<p>(2) Turn off electrical power (A1-F18AC-LMM-00). Disconnect 5P-D009 from emergency IFR directional control valve.</p> <p>(3) Turn on electrical power (A1-F18AC-LMM-000). If 28vdc exists at 5P-D009 pin 1, replace FUEL system control panel (A1-F18AC-460-300, WP104 00). If 28vdc does not exist, replace emergency inflight refueling directional control valve (A1-F18AC-460-300, WP080 00).</p> <p>Rig probe door (A1-F18AC-460-300, WP086 00).</p>

Table 2. Probe Leak Test

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>System Required Components</p> <p>All system components installed.</p> <p>Related Systems Required</p> <p>Electrical System</p> <p>Hydraulic System</p> <p>Power Plant and Related System</p>		

Table 2. Probe Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
Part Number or Type Designation 01GA000 —	Nomenclature Nozzle Adapter Fuel Servicing Equipment	
Materials Required		
None		
NOTE		
Component locations are shown in WP006 00. Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this test.		
1. PREPARATION. a. Defuel (A1-F18AC-PCM-000) aircraft until total fuel amount is less than 6000 lb. b. Disconnect refueling nozzle from refueling receptacle and install ground refueling receptacle cap but do not close door 8. c. Apply electrical and hydraulic power (A1-F18AC-LMM-000).		
<div>CAUTION</div>		
To prevent damage to inflight refueling probe, make sure probe area is clear.		
d. Set PROBE control switch to EXTEND. e. Remove electrical and hydraulic power (A1-F18AC-LMM-000). f. Position work stand next to, but clear of probe. g. Install aircraft ground safety refueling probe lock h. Insert refueling nozzle onto nozzle adapter by pushing nozzle in and turning nozzle clockwise.		

Table 2. Probe Leak Test (Continued)



Procedure	Normal Indication	Remedy for Abnormal Indication
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent fuel spillage, resulting in possible fire and/or explosion, make sure nozzle is locked in position on nozzle adapter.</p> </div>		
<p>i. Make sure refueling nozzle is fully engaged clockwise until nozzle resists turning. Lock nozzle in position on nozzle adapter by positioning manual shutoff lever in full open position.</p> <p>j. Test refueling nozzle engagement on nozzle adapter by a counter-clockwise tug on nozzle handles. Determine refueling hose quick disconnect fitting engagement by pulling on hose and visual inspection.</p> <p>k. Squeeze handles on nozzle adapter and push nozzle adapter on inflight refueling probe. Release handles on nozzle adapter.</p> <p>l. Pull on nozzle adapter to make sure nozzle adapter is locked correctly on inflight refueling probe.</p>		
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent damage to inflight refueling probe assembly, do not allow inflight refueling probe to support weight of refueling hose, nozzle and nozzle adapter.</p> </div>		
<p>m. Support refueling hose on work stand.</p> <p>n. Turn master precheck valve handle to UP PRECHECK.</p> <p>o. If external fuel tanks are installed, rotate manual precheck valve to precheck position.</p>		

Table 2. Probe Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">CAUTION</p> <p>To prevent fuel contamination of cockpit and surrounding area, canopy must be closed.</p> <p>p. Close canopy (A1-F18AC-LMM-000).</p> <p>2. TEST. (QA)</p>		
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to aircraft structure and/or fuel spillage, refueling must be stopped immediately if tank pressure indicator indicates red. Do not try to restart refueling, even if indicator returns to green, until malfunction has been corrected.</p> <p>To prevent possible damage to fuel system, fuel pressure from servicing equipment shall not exceed 55 psi.</p> <p>To prevent fuel spillage, refueling should be stopped immediately, if fuel flow indicator does not stop rotating within 45 seconds (precheck).</p>		
a. Turn on fuel servicing equipment and regulate refueling pressure to 55 psi maximum. Observe tank pressure/fuel flow indicator (door 8).	1. Fuel flow indicator stops rotating within 45 seconds.	Do table 2, WP003 00.
b. Inspect the inflight refueling probe assembly, tube assembly and seals between the inflight refueling probe assembly and ground refueling housing for leakage.	No leakage.	Refer to (A1-F18AC-460-300, WP087 00 and WP076 00).
c. Turn master precheck valve handle to DOWN OFF position. If external fuel tanks are installed, release manual precheck valve.	All fuel tanks start filling (fuel flow indicator rotating).	
d. Turn off fuel servicing equipment.		
3. FINAL.		
a. Position a fuel container under nozzle adapter.		

Table 2. Probe Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">CAUTION</p> <p>When removing nozzle adapter, be careful of fuel remaining in adapter.</p> <p>b. Squeeze handles on nozzle adapter and pull nozzle adapter from inflight refueling probe nozzle.</p> <p>c. Remove refueling hose and adapter from work stand.</p> <p>d. Disconnect refueling nozzle from nozzle adapter.</p> <p>e. Remove aircraft ground safety refueling probe lock (A1-F18AC-PCM-000).</p> <p>f. Turn on electrical and hydraulic power (A1-F18AC-LMM-000).</p>		
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to inflight refueling probe, make sure probe area is clear.</p> <p>g. Set PROBE switch to RETRACT.</p> <p>h. Remove hydraulic and electrical power (A1-F18AC-LMM-000).</p> <p>i. Remove work stand.</p> <p>j. Close door 8 (A1-F18AC-LMM-010).</p>		

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
INFLIGHT REFUELING SYSTEM

Reference Material

Line Maintenance Procedures	A1-F18AC-LMM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Inflight Refueling Floodlight Does Not Come On, Table 2	5
Inflight Refueling System Pressure Test, Figure 1	21
Probe Does Not Extend With Probe Control Switch In EMERGENCY EXTEND Position (Probe Functions Normally in EXTEND and RETRACT Positions), Table 4	13
Probe Does Not Extend With Probe Control Switch In EXTEND Position, Table 1	2
Probe Does Not Retract, Table 3	9
PROBE UNLK Displayed When Probe Extended, Table 5	17
PROBE UNLK Displayed When Probe Retracted, Table 6	19

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP-MDA-F/A-18-00054C1)	1 Oct 86	—

**Table 1. Probe Does Not Extend With PROBE Control Switch In EXTEND
Position**

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
74D130017-1001	Brake Bleeder Assembly and Pressure Indicator

Table 1. Probe Does Not Extend With PROBE Control Switch In EXTEND Position (Continued)

<div>Materials Required</div> <div>None</div> <div>NOTE</div> <div>Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this test. Component locations are shown in WP006 00.</div> <div>Malfunction is caused by one of the items listed below:</div> <div>Aircraft Wiring FUEL System Control Panel Inflight Refueling Directional Control Valve Inflight Refueling Probe Actuating Cylinder Inflight Refueling Probe Shuttle Valve No. 8 Circuit Breaker/Relay Panel Assembly 5CBC002 IFR PROBE Circuit Breaker</div>		
Procedure	No	Yes
<div>CAUTION</div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</div> <div>NOTE</div> <div>The question used in logic tree “Does continuity exist” means to test for the items listed below:</div> <div><div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div></div>		
a. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 8 circuit breaker/relay panel assembly, is IFR PROBE circuit breaker (zone B5) open?	c	b
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Close IFR PROBE circuit breaker.		

Table 1. Probe Does Not Extend With PROBE Control Switch In EXTEND Position (Continued)

Procedure	No	Yes
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) If circuit breaker opens, isolate short using inflight refueling system schematic (A1-F18AC-460-500, WP005 00) and do step u.	-	-
c. Do substeps below:		
(1) Turn off hydraulic and electrical power (A1-F18AC-LMM-000).		
(2) Remove door 104 (A1-F18AC-LMM-010).		
(3) Disconnect 5P-B007 from inflight refueling probe directional control valve.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) With PROBE control switch set to EXTEND does 28vdc exist at 5P-B007 pin H?	d	e
d. Turn off electrical power (A1-F18AC-LMM-000). Remove FUEL system control panel (A1-F18AC-460-300, WP104 00). Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-H027, pin 29?	f	g
e. Turn off electrical power (A1-F18AC-LMM-000). Does a ground exist at 5P-B007 pin J?	h	i
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-C159G pin 48 to 5P-H027 pin 29. If wiring is good, isolate between no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and 5CBC002 IFR PROBE circuit breaker and do step u.	-	-
g. Turn off electrical power (A1-F18AC-LMM-000). Does continuity exist between 5J-H027 pin 29 to 5J-H027 pin 31?	j	k
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 5P-B007 pin J to 52J-B021 pin 18 and do step u.	-	-
i. Turn on hydraulic and electrical power (A1-F18AC-LMM-000). On FUEL system control panel, set PROBE control switch to EMERGENCY EXTEND. Does probe extend?	l	m
j. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step u.	-	-
k. Do substeps below:		
(1) Install FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(2) Turn on hydraulic and electrical power (A1-F18AC-LMM-000).		
(3) Set PROBE control switch to EMERGENCY EXTEND to extend probe.		

Table 1. Probe Does Not Extend With PROBE Control Switch In EXTEND Position (Continued)

Procedure	No	Yes
(4) Turn off electrical and hydraulic power (A1-F18AC-LMM-000).		
(5) Disconnect 5P-B006 from inflight refueling extend limit switch.		
(6) Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-B006 pin 11?	n	o
l. Turn off hydraulic and electrical power (A1-F18AC-LMM-000) and do substeps below:		
(1) Deplete APU accumulator (A1-F18AC-LMM-000).		
(2) Connect plug 5P-B007 to inflight refueling directional control valve.		
(3) Disconnect elbow (6, figure 1) from inflight refueling probe actuating cylinder.		
(4) Connect pressure indicator to elbow (6).		
(5) Apply hydraulic and electrical power (A1-F18AC-LMM-000).		
(6) Does pressure indicator show a pressure indication with PROBE control switch on FUEL system control panel set to EXTEND and/or EMERGENCY EXTEND?	p	q
m. Turn off hydraulic and electrical power (A1-F18AC-LMM-000) and do substeps below:		
(1) Dump APU accumulator (A1-F18AC-LMM-000).		
(2) Connect plug 5P-B007 to inflight refueling directional control valve.		
(3) Disconnect tube (2) from inflight refueling probe shuttle valve.		
(4) Connect pressure indicator to tube (2).		
(5) Apply hydraulic and electrical power (A1-F18AC-LMM-000). Does pressure indicator show a pressure indication with PROBE control switch set to EXTEND?	r	p
n. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 5P-H027 pin 31 to 5P-B006 pin 11 and do step u.	-	-
o. Turn off electrical power (A1-F18AC-LMM-000). Does continuity exist between 5P-B006 pin 12 to 5P-B007 pin H?	s	t
p. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Replace inflight refueling probe shuttle valve (A1-F18AC-460-300, WP081 00) and do step u.	-	-

Table 1. Probe Does Not Extend With PROBE Control Switch In EXTEND Position (Continued)

Procedure	No	Yes
q. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Remove probe fairing (A1-F18AC-460-300, WP085 00) and disconnect probe linkage to manually extend probe. Replace inflight refueling probe actuating cylinder (A1-F18A-460-300, WP078 00) and do step u.	-	-
r. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Replace inflight refueling directional control valve (A1-F18AC-460-300, WP079 00) and do step u.	-	-
s. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 5P-B006 pin 12 to 5P-B007 pin H and do step u.	-	-
t. Replace inflight refueling probe actuating cylinder (A1-F18AC-460-300, WP078 00) and do step u.	-	-
u. If disconnected or removed during this procedure, make sure the items below are connected or installed:		
(1) Connect plug 5P-B007 to inflight refueling directional control valve.		
(2) Disconnect pressure indicator and install elbow (6).		
(3) 5P-B006		
(4) Doors 104 and 10L (A1-F18AC-LMM-010)		
(5) FUEL system control panel (A1-F18AC-460-300, WP104 00)	-	-

Table 2. Inflight Refueling Floodlight Does Not Come On

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
Materials Required	
None	

Table 2. Inflight Refueling Floodlight Does Not Come On (Continued)

NOTE		
<p>Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this procedure.</p> <p>Component locations are shown in WP006 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Exterior Lighting System Inflight Refueling Floodlight Inflight Refueling Floodlight Transformer No. 3 Relay Panel Assembly Wiring No. 7 Circuit Breaker/Relay Panel Assembly Wiring No. 8 Circuit Breaker/Relay Panel Assembly Wiring 5CBC003 IFR LT Circuit Breaker 5K-E011 Inflight Refueling Light Control Relay 7K-C004 Exterior Lights Master Switch Relay</p>		
Procedure	No	Yes
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C159G</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Make sure exterior lights switch on cockpit left throttle grip is on, IFR LT circuit breaker (zone D8) on no. 8 circuit breaker/relay panel assembly is set and PROBE control switch is set to EXTEND.		
(2) Turn off electrical and hydraulic power (A1-F18AC-LMM-000).		
(3) Install IFR probe safety lock (A1-F18AC-PCM-000).		

Table 2. Inflight Refueling Floodlight Does Not Come On (Continued)

Procedure	No	Yes
(4) Make sure inflight refueling probe floodlight lamp is operable. Replace if required (A1-F18AC-460-300, WP083 02 and WP083 03).		
(5) Turn on electrical power (A1-F18AC-LMM-000). If 8.3vac does not exist at inflight refueling probe floodlight do substeps below:		
(a) Turn off electrical power (A1-F18AC-LMM-000).		
(b) Open door 13L (A1-F18AC-LMM-010).		
(c) Remove 5K-E011 inflight refueling light control relay from no. 3 relay panel assembly.		
(d) Turn on electrical power (A1-F18AC-LMM-000). Does 115vac exist at 5K-E011, socket A2?	b	q
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Remove 7K-C004 exterior lights master switch relay from no. 7 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000). Does 115vac exist 7K-C004, socket C2?	c	h
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly.		
(3) Does continuity exist from 52J-C057D pin 58 to 7K-C004, socket C2?	d	e
d. Isolate defective no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step x.	-	-
e. Do substeps below:		
(1) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(2) Does continuity exist from 52P-C159G pin 8 to 52P-C057D pin 58?	f	g
f. Isolate defective aircraft wiring (A1-F18AC()-WDM-000) and do step x.	-	-
g. Isolate between no. 8 circuit breaker/relay panel assembly wiring and 5CBC003 IFR LT circuit breaker (A1-F18AC-420-300, WP030 00) and do step x.	-	-
h. Does 28vdc exist at 7K-C004, socket X1?	i	k

Table 2. Inflight Refueling Floodlight Does Not Come On (Continued)

Procedure	No	Yes
i. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly.		
(3) Does continuity exist from 52J-C057D pin 43 to 7K-C004 pin X1?	d	j
j. Troubleshoot exterior lighting system (A1-F18AC-440-500, WP003 00) and do step x.	-	-
k. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Does a ground exist at 7K-C004, socket X2?	d	l
l. Does continuity exist from 7K-C004, socket C1 to 5K-E011, socket A2?	m	p
m. Do substeps below:		
(1) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly and 52P-E059 from no. 3 relay panel assembly.		
(2) Does continuity exist from 52P-C057D pin 92 to 52P-E059 pin 49?	f	n
n. Does continuity exist from 7K-C004, socket C1 to 52J-C057D pin 92?	d	o
o. Isolate defective no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step x.	-	-
p. Replace 7K-C004 exterior lights master switch relay (A1-F18AC-420-300, WP027 00) and do step x.	-	-
q. Does 28vdc exist at 5K-E011, socket X1?	r	s
r. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-00).		
(2) Disconnect 52P-E059 from no. 3 relay panel assembly.		
(3) Does continuity exist from 52J-E059 pin 74 to 5K-E011, socket X1?	o	f
s. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Does ground exist at 5K-E011 pin X2?	o	t
t. Do substeps below:		
(1) Disconnect 52P-E059 from no. 3 relay panel assembly.		
(2) Does continuity exist from 5K-E011, socket A1 to 52J-E059 pin 60?	o	u

Table 2. Inflight Refueling Floodlight Does Not Come On (Continued)

Procedure	No	Yes
u. Remove 20 mm gun (A1-F18AC-750-300, WP003 00). Does continuity exist from 52P-E059 pin 60 to 5T-B012 HV terminal?	f	v
v. Does continuity exist from: (1) 5T-B012 terminal G to ground (2) 5T-B012 terminal G to floodlight terminal (white/blue wire) (3) 5T-B012 terminal LV to floodlight terminal (white wire)?	f	w
w. Do substeps below: (1) Install 5K-E011 inflight refueling light control relay in no. 3 relay panel assembly. (2) Connect 52P-E059 to no. 3 relay panel assembly. (3) Turn on electrical power (A1-F18AC-LMM-000). (4) If 115vac does not exist at inflight refueling transformer HV terminal, replace 5K-E011 light control relay (A1-F18AC-420-300, WP035 00) and do step x. If 115vac exists at inflight refueling transformer, replace transformer (A1-F18AC-460-300, WP084 00) and do step x.	-	-
x. If installed remove IFR probe safety lock (A1-F18AC-PCM-000). If disconnected, opened or removed during this procedure, make sure the items below are installed, closed or connected: (1) Connectors 52P-G057D, 52P-E059 and 52P-C159G (2) Doors 10L and 13L (A1-F18AC-LMM-010) (3) Relays 5K-E011 and 7K-C004 (4) 20 mm gun (A1-F18AC-750-300, WP003 00)	-	-

Table 3. Probe Does Not Retract

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
74D130017-1001	Brake Bleeder Assembly and Pressure Indicator

Table 3. Probe Does Not Retract (Continued)

Materials Required		
None		
NOTE		
<p>Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this procedure.</p> <p>Component locations are shown in WP006 00.</p>		
<p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring FUEL System Control Panel Inflight Refueling Directional Control Valve Inflight Refueling Probe Actuating Cylinder Inflight Refueling Probe Retract Limit Switch No. 8 Circuit Breaker/Relay Panel Assembly Wiring 5CBC002 IFR PROBE Circuit Breaker</p>		
Procedure	No	Yes
<div style="text-align: center;">WARNING</div> <p>To prevent injury to personnel, keep clear of inflight refueling probe area when aircraft probe ground safety lock is removed and hydraulic and electrical power is on.</p> <div style="text-align: center;">CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>52P-C159G</p> <div style="text-align: center;">NOTE</div> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		

Table 3. Probe Does Not Retract (Continued)

Procedure	No	Yes
a. Do substeps below		
(1) On no. 8 circuit breaker/relay panel assembly (door 10L), make sure IFR PROBE circuit breaker (zone B5) is closed. If circuit breaker is closed, turn off hydraulic and electrical power (A1-F18AC-LMM-000).		
(2) Install IFR aircraft probe safety lock (A1-F18AC-PCM-000).		
(3) Open door 104 (A1-F18AC-LMM-010) and disconnect 5P-B007 from inflight refueling directional control valve.		
(4) Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-B007 pin F with PROBE control switch set to RETRACT?	b	c
b. Turn off electrical power (A1-F18AC-LMM-000). Remove FUEL system control panel (A1-F18AC-460-300, WP104 00). Does continuity exist from 5J-H027 pin 29 to 5J-H027 pin 30 with PROBE control switch set to RETRACT?	h	i
c. Does a ground exist at 5P-B007 pin K?	d	e
d. Isolate defective aircraft wiring (A1-F18AC()-WDM-000) from 5P-B007 pin K to ground and do step p.	-	-
e. Turn off hydraulic and electrical power (A1-F18AC-LMM-000) and do substeps below:		
(1) Deplete APU accumulator (A1-F18AC-LMM-000).		
(2) Disconnect elbow (3, figure 1) and tube (4) from probe actuating cylinder and remove elbow (3) from tube (4).		
(3) Connect pressure indicator to tube (4).		
(4) Apply hydraulic and electrical power (A1-F18AC-LMM-000). Does pressure indicator show a pressure indication with PROBE control switch set to RETRACT?	f	g
f. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Replace inflight refueling directional control valve (A1-F18AC-460-300, WP079 00) and do step p.	-	-
g. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Replace inflight refueling probe actuating cylinder (A1-F18AC-460-300, WP078 00) and do step p.	-	-
h. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step p. ...	-	-
i. Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-H027 pin 29?	j	k

Table 3. Probe Does Not Retract (Continued)

Procedure	No	Yes
j. Turn off electrical power (A1-F18AC-LMM-000). Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 5P-H027 pin 29 to 52P-C159G pin 48. If wiring is good, isolate between no. 8 circuit breaker/relay panel assembly (A1-F18AC-420-300, WP030 00) and 5CBC002 circuit breaker and do step p.	-	-
k. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Get access to WTB002 wire splice (A1-F18AC-460-300, WP082 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000). Does continuity exist from WTB002 green wire to 5P-H027 pin 30?	l	m
l. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 5P-H027 pin 30 to WTB002 wire splice (green wire) and do step p.	-	-
m. Turn off electrical power (A1-F18AC-LMM-000). Does continuity exist from 5P-B007 pin F to WTB002 wire splice (yellow wire)?	n	o
n. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 5P-B007 pin F to WTB002 wire splice (yellow wire) and do step p.	-	-
o. Replace inflight refueling probe retract limit switch (A1-F18AC-460-300, WP082 00) and do step p.	-	-
p. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connector 5P-B007		
(2) Remove IFR probe safety lock (A1-F18AC-PCM-000).		
(3) FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(4) WTB002 wire splice (A1-F18AC-460-300, WP082 00)		
(5) Tube (4) and elbow (3) (fig 1)		
(6) Doors 10L and 104 (A1-F18AC-LMM-010)		
(7) Disconnect pressure indicator (figure 1).	-	-

**Table 4. Probe Does Not Extend With Probe Control Switch In EMERGENCY
EXTEND Position (Probe Functions Normally in EXTEND and
RETRACT Positions)**

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

77/BN

Multimeter

74D130017-1001

Brake Bleeder
Assembly and
Pressure Indicator

Materials Required

None

NOTE

Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this procedure.

Component locations are shown in WP006 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Emergency Inflight Refueling Directional Control Valve
FUEL System Control Panel
Inflight Refueling Probe Shuttle Valve
No. 3 Relay Panel Assembly Wiring
No. 8 Circuit Breaker/Relay Panel Assembly Wiring
5CBC001 EMER Inflight Refueling Circuit Breaker
5K-E011 Inflight Refueling Light Control Relay

Table 4. Probe Does Not Extend With Probe Control Switch In EMERGENCY
EXTEND Position (Probe Functions Normally in EXTEND and
RETRACT Positions) (Continued)

Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>52P-G159G</p> <p>To prevent damage to inflight refueling probe, make sure probe area is clear.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">Pin to pin test per procedural step.Shorts to ground.Shorts between surrounding pins on connectors.Shorts between shield and conductors.Shield continuity.		
a. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010). On no. 8 circuit breaker/relay panel assembly make sure EMER IFR circuit breaker (zone A3) is closed.		
(2) If circuit breaker is closed, turn off electrical power (A1-F18AC-LMM-000).		
(3) On ELEC power control panel, set BATT switch to ON (A1-F18AC-LMM-000). On FUEL system control panel with PROBE CONTROL SWITCH in EMERGENCY EXTEND position, does inflight refueling probe extend?	b	k
b. Do substeps below:		
(1) On ELEC power control panel, set BATT switch to OFF (A1-F18AC-LMM-000).		
(2) Turn off hydraulic power (A1-F18AC-LMM-000).		
(3) Remove door NWC (A1-F18AC-LMM-010).		
(4) Disconnect 5P-D009 from emergency inflight refueling directional control valve.		
(5) Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-D009 pin 1? ...	c	i

**Table 4. Probe Does Not Extend With Probe Control Switch In EMERGENCY
EXTEND Position (Probe Functions Normally in EXTEND and
RETRACT Positions) (Continued)**

Procedure	No	Yes
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(3) Does continuity exist from 5P-H027 pin 35 to 5P-D009 pin 1?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step o.	-	-
e. Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-H027 pin 36?	f	h
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly. Does continuity exist from 52P-C159G pin 57 to 5P-H027 pin 36?	d	g
g. Isolate between no. 8 circuit breaker/relay panel assembly wiring and 5CBC001 EMER IFR circuit breaker (A1-F18AC-420-300, WP030 00) and do step o.	-	-
h. Turn electrical power off (A1-F18AC-LMM-000). Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step o.	-	-
i. Does a ground exist at 5P-D009 pin 3?	j	l
j. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 13L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-E059 from no. 3 relay panel assembly.		
(4) Does continuity exist from 52P-E059 pin 118 to 5P-D009 pin 3?	d	k
k. Do substeps below:		
(1) If on, turn off hydraulic power (A1-F18AC-LMM-000).		
(2) If set to ON, set BATT switch on ELEC power control panel to OFF.		

**Table 4. Probe Does Not Extend With Probe Control Switch In EMERGENCY
EXTEND Position (Probe Functions Normally in EXTEND and
RETRACT Positions) (Continued)**

Procedure	No	Yes
(3) Isolate between no. 3 relay panel assembly wiring and 5K-E011 inflight refueling light control relay (A1-F18AC-420-300, WP035 00) and do step o.	-	-
l. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Deplete APU accumulator (A1-F18AC-LMM-000).		
(3) Remove door 104 (A1-F18AC-LMM-010).		
(4) Disconnect tube (1) from inflight refueling probe shuttle valve (figure 1).		
(5) Connect pressure indicator to tube (1).		
(6) Connect 5P-D009 to emergency inflight refueling directional control valve.		
(7) Turn on hydraulic and electrical power (A1-F18AC-LMM-000). Does pressure indicator show a pressure indication with PROBE CONTROL SWITCH set to EMERGENCY EXTEND?	m	n
m. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Replace emergency inflight refueling directional control valve (A1-F18AC-460-300, WP080 00) and do step o.	-	-
n. Turn off hydraulic and electrical power (A1-F18AC-LMM-000). Replace inflight refueling probe shuttle valve (A1-F18AC-460-300, WP081 00) and do step o.	-	-
o. If disconnected, removed or opened during this procedure, make sure the items below are connected, installed or closed:		
(1) Tube (1) to inflight refueling probe shuttle valve (figure 1)		
(2) Connectors 5P-D009, 52P-E059 and 52P-C159G		
(3) FUEL system control panel (A1-F18AC-460-300, WP104 00)		
(4) Doors NWC, 10L, 13L and 104 (A1-F18AC-LMM-010)		
(5) Disconnect pressure indicator (figure 1).	-	-

Table 5. PROBE UNLK Displayed When Probe Extended

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
77/BN	Multimeter	
Materials Required		
None		
NOTE		
Inflight Refueling System Caution Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this test.		
For component locations, refer to WP006 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Inflight Refueling Probe Retract Limit Switch No. 3 Relay Panel Assembly No. 4 Circuit Breaker Panel Assembly 5K-D004 Inflight Refueling Switch Position Relay 5K-E004 Inflight Refueling Switch Position Relay		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin test that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 5. PROBE UNLK Displayed When Probe Extended (Continued)

Procedure	No	Yes
a. Turn off electrical and hydraulic power (A1-F18AC-LMM-000). Open door 32R (A1-F18AC-LMM-010). Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612. Turn on electrical power (A1-F18AC-LMM-000). Does a ground exist at 85P-N002A, pin 46?	b	c
b. Open door 13R (A1-F18AC-LMM-010). Disconnect 70P-F001B from Air Data Computer CP-1334/A. Does a ground exist at 70P-F001B pin 97?	d	e
c. Do applicable substeps below:		
(1) On 161353 THRU 162909, open door 13L (A1-F18AC-LMM-010). Disconnect 52P-E059 from no. 3 relay panel assembly. Does continuity exist from 52P-E059 pin 29 to 85P-N002A pin 46?	f	g
(2) On 163092 AND UP; open door 10R (A1-F18AC-LMM-010). Disconnect 52P-D026D from no. 4 circuit breaker panel assembly. On F/A-18A, does continuity exist from 52P-D026D pin 2 to 85P-N002A pin 46?	f	g
On F/A-18B, does continuity exist from 52P-D026D pin 1 to 85P-N002A pin 46?	f	g
d. Do Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00) and do step i.	-	-
e. Install IFR probe safety lock (A1-F18AC-PCM-000). Remove door 104 (A1-F18AC-LMM-010). Disconnect inflight refueling probe retract limit switch wires identified at wire splice WTB002 (probewell). Does continuity exist from:		
52P-B021 pin 15 to WTB002 wire splice (brown wire)		
70P-F001B pin 97 to WTB002 wire splice (orange wire)?	f	h
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i.	-	-
g. On 161353 THRU 162909, isolate between no. 3 relay panel assembly wiring and 5K-E004 inflight refueling switch position relay (A1-F18AC-420-300, WP035 00) and do step i. On 163092 AND UP, isolate between no. 4 circuit breaker panel assembly wiring and 5K-D004 inflight refueling switch position relay (A1-F18AC-420-300, WP025 00) and do step i.	-	-
h. Replace inflight refueling probe retract limit switch (A1-F18AC-460-300, WP082 00) and do step i.	-	-
i. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connects 52P-B021, 52P-D026A, 52P-E059, 70P-F001B, 85P-N002A		
(2) Wire splice WTB002		
(3) Doors 10R, 13L, 13R, 32R and 104		
(4) Remove IFR probe safety lock (A1-F18AC-PCM-000).	-	-

Table 6. PROBE UNLK Displayed When Probe Retracted

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
77/BN	Multimeter	
Materials Required		
None		
NOTE		
Inflight Refueling System Caution Schematic (A1-F18AC-460-500, WP005 00), may be used while doing this test.		
For component locations are shown in WP006 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Inflight Refueling Probe Retract Limit Switch No. 3 Relay Panel Assembly No. 4 Circuit Breaker Panel Assembly 5K-D004 Inflight Refueling Switch Position Relay 5K-E004 Inflight Refueling Switch Position Relay		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <div><div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div></div> <div><div>a. Turn off electrical and hydraulic power (A1-F18AC-LMM-000). Open door 32R (A1-F18AC-LMM-010). Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612. Does a ground exist at 85P-N002A pin 46?</div><div>b</div><div>c</div></div>		

Table 6. PROBE UNLK Displayed When Probe Retracted (Continued)

Procedure	No	Yes
b. Do applicable substeps below:		
(1) On 161353 THRU 162909, open door 13L (A1-F18AC-LMM-010). Disconnect 52P-E059 from no. 3 relay panel assembly. Does continuity exist from 52P-E059 pin 29 to 85P-N002A pin 46?	d	e
(2) On 163092 AND UP, open door 10R (A1-F18AC-LMM-010). Disconnect 52P-D026A from no. 4 circuit breaker panel assembly. On F/A-18A, does continuity exist from 52P-D026A pin 2 to 85P-N002A pin 46?	d	e
On F/A-18B, does continuity exist from 52P-D026A pin 1 to 85P-N002A pin 46?	d	e
c. Open door 13R (A1-F18AC-LMM-010). Disconnect 70P-F001B from Air Data Computer CP-1334/A. Does a ground exist at 70P-F001B pin 97?	f	g
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j.	-	-
e. On 161353 THRU 162909, isolate between no. 3 relay panel assembly wiring and 5K-E004 inflight refueling switch position relay (A1-F18AC-420-300, WP035 00) and do step j. On 163092 AND UP, isolate between no. 4 circuit breaker panel assembly wiring and 5K-D004 inflight refueling switch position relay (A1-F18AC-420-300, WP025 00) and do step j.	-	-
f. Install IFR probe safety lock (A1-F18AC-PCM-000). Disconnect 52P-B021 (probewell). Does a ground exist at 52J-B021 pin 15?	d	h
g. Do Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00) and do step j.	-	-
h. Remove door 104 (A1-F18AC-LMM-010). Disconnect inflight refueling probe retract limit switch wires identified at wire splice WTB002 (probewell). Does continuity exist from:		
52P-B021 pin 15 to WTB002 wire splice (brown wire)		
70P-F001B pin 97 to WTB002 wire splice (orange wire)?	d	i
i. Replace inflight refueling probe retract limit switch (A1-F18AC-460-300, WP082 00) and do step j.	-	-
j. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 52P-B021, 52P-D026A, 52P-E059, 70P-F001B, 85P-N002A		
(2) Wire splice WTB002		
(3) Remove IFR probe safety lock (A1-F18AC-PCM-000)		
(4) Doors 10R, 13L, 13R, 32R and 104	-	-

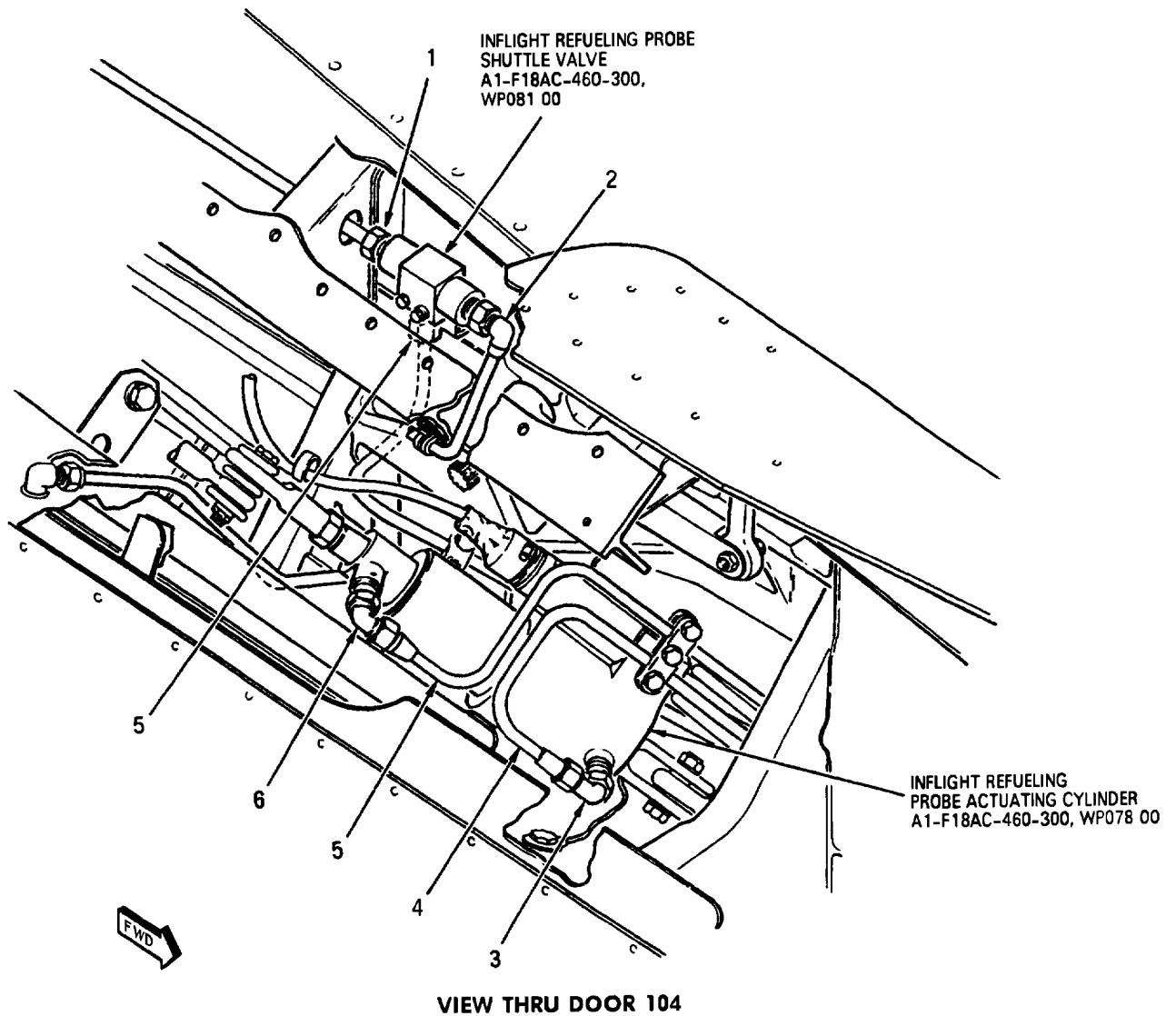


Figure 1. Inflight Refueling System Pressure Test (Sheet 1 of 2)

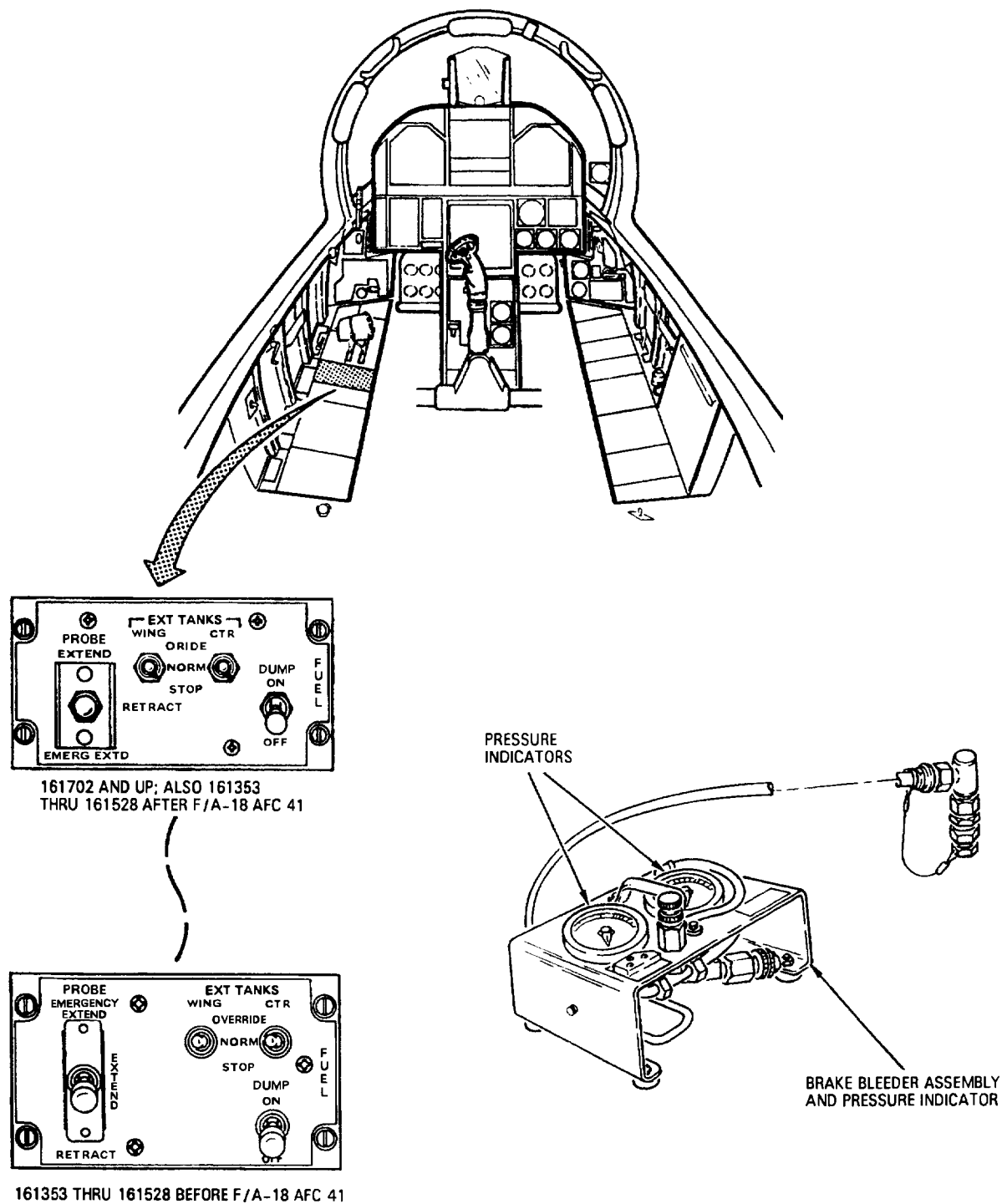


Figure 1. Inflight Refueling System Pressure Test (Sheet 2)

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
INFLIGHT REFUELING SYSTEM**

Reference Material

None

Alphabetical Index

Subject	Page No.
Inflight Refueling System Component Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

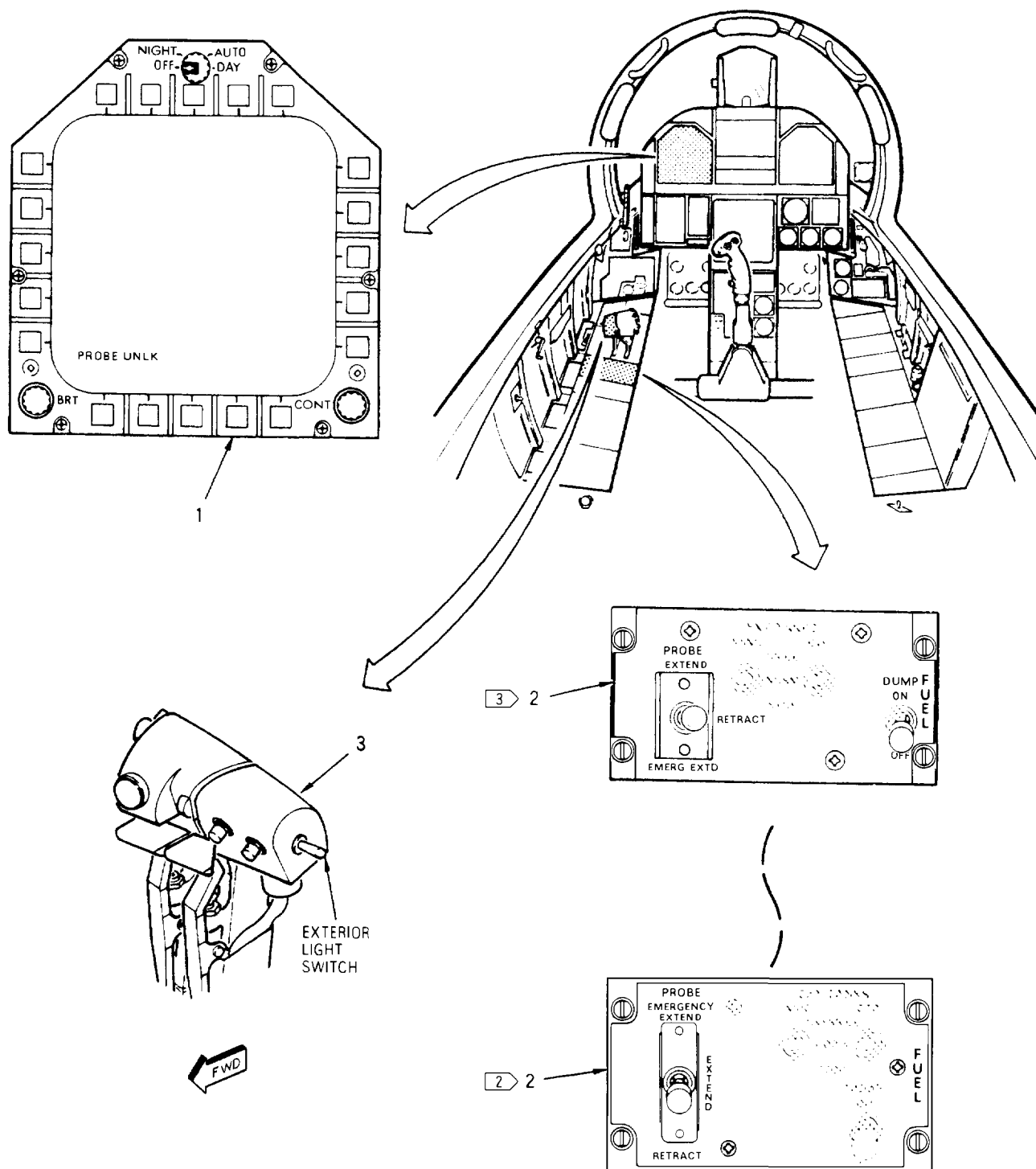


Figure 1. Inflight Refueling System Component Locator (Sheet 1 of 9)

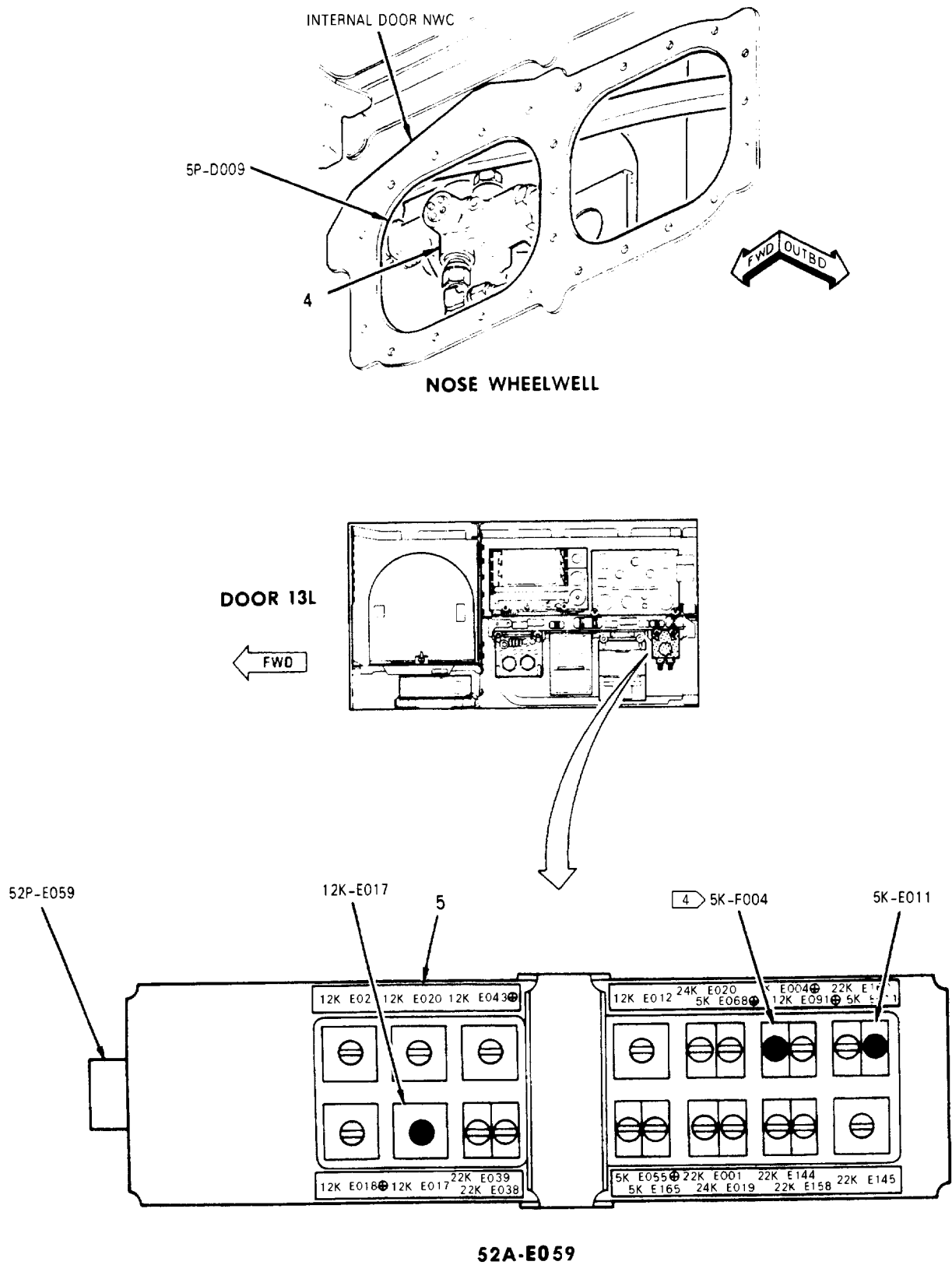
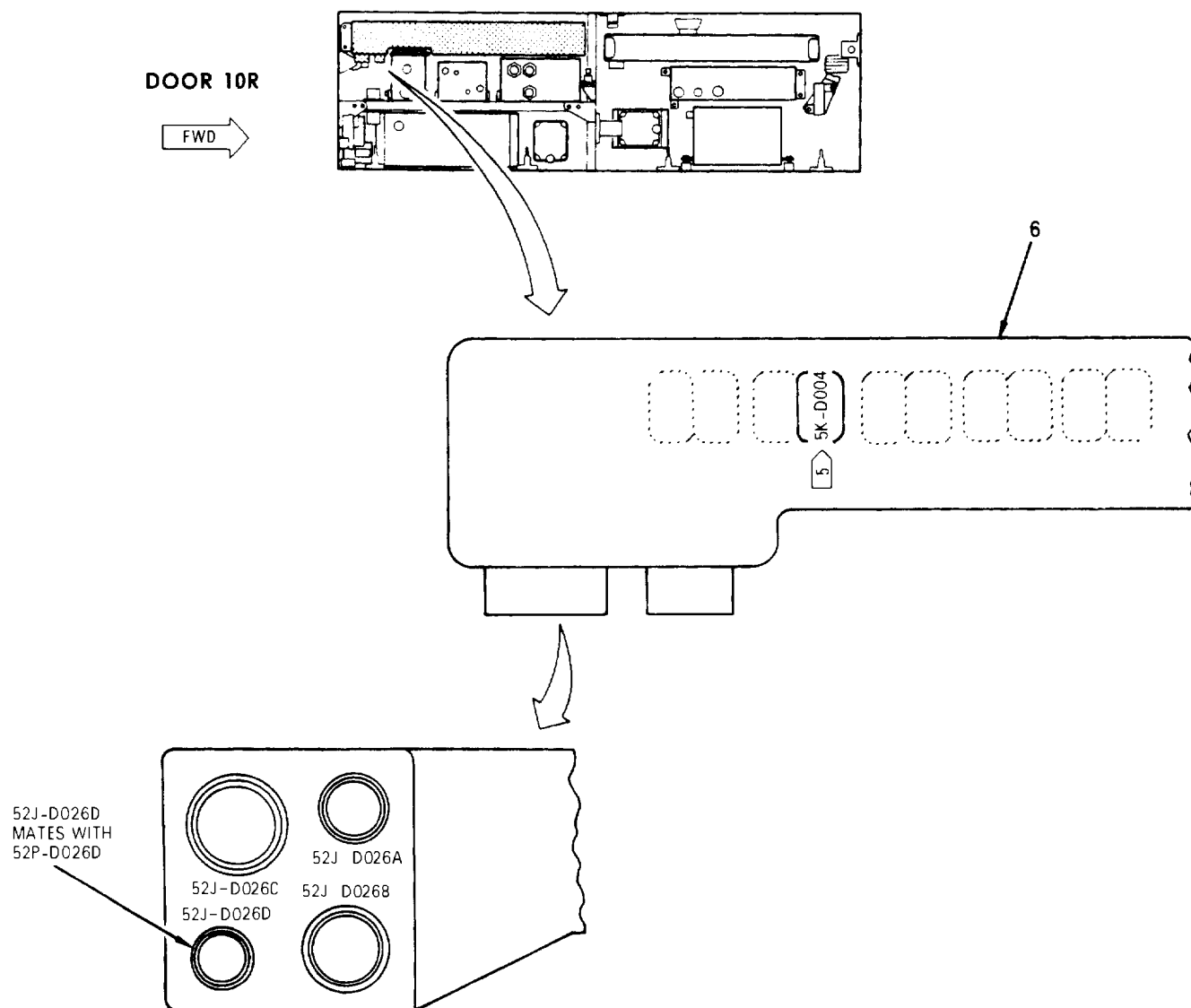


Figure 1. Inflight Refueling System Component Locator (Sheet 2)



52A-D026 NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
	5 5K-D004	IFR SWITCH POSITION RELAY	

Figure 1. Inflight Refueling System Component Locator (Sheet 3)

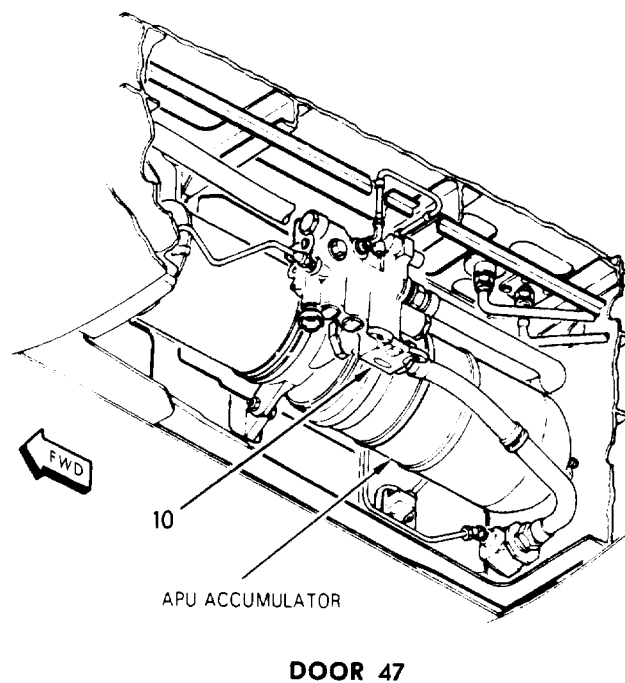
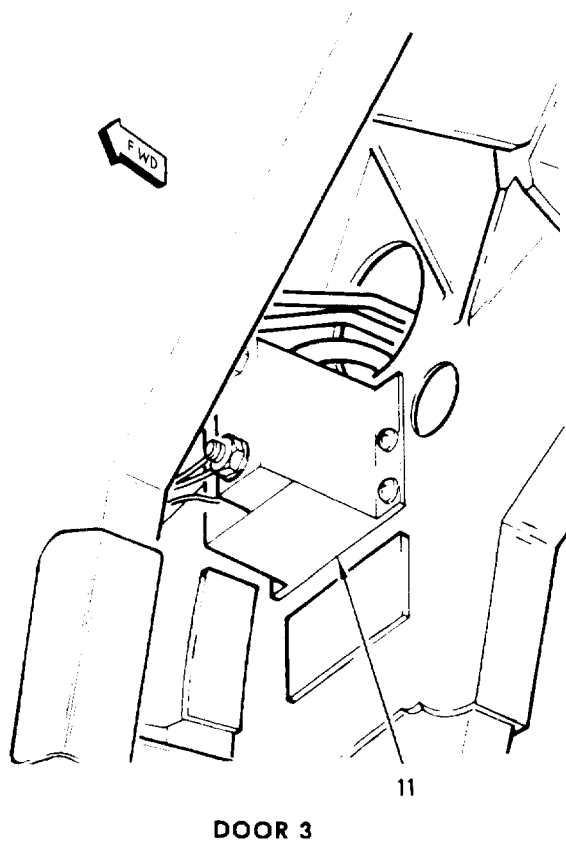
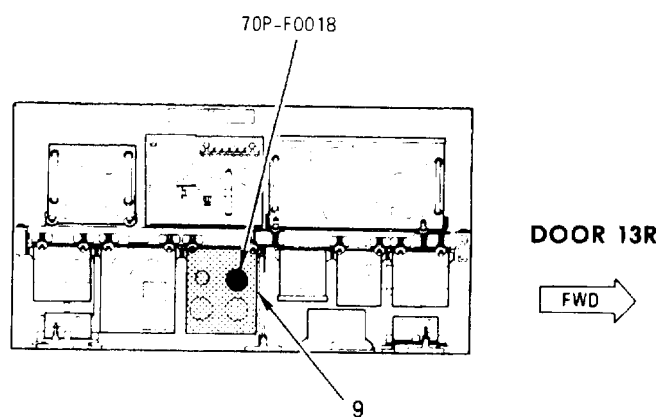


Figure 1. Inflight Refueling System Component Locator (Sheet 5)

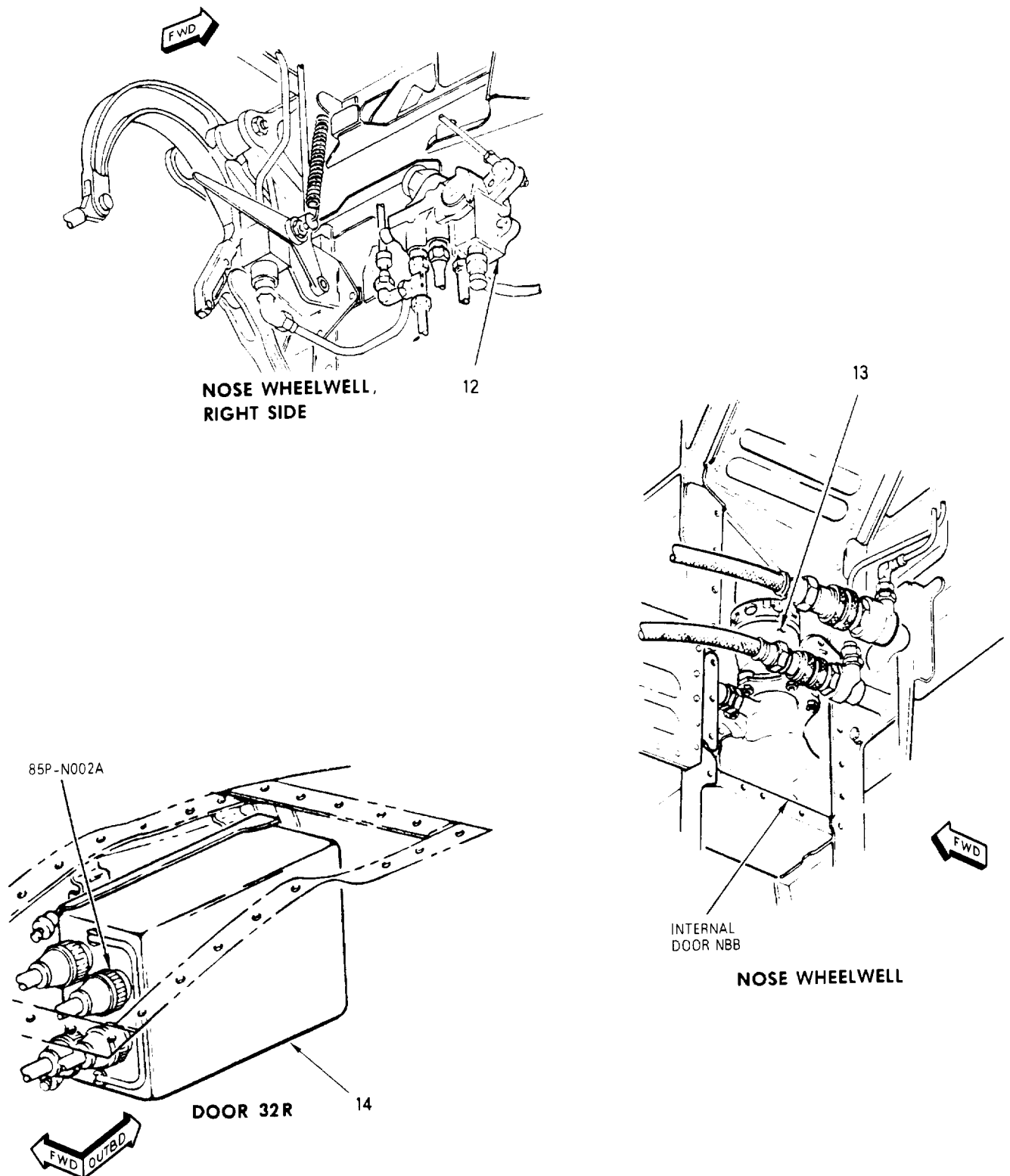


Figure 1. Inflight Refueling System Component Locator (Sheet 6)

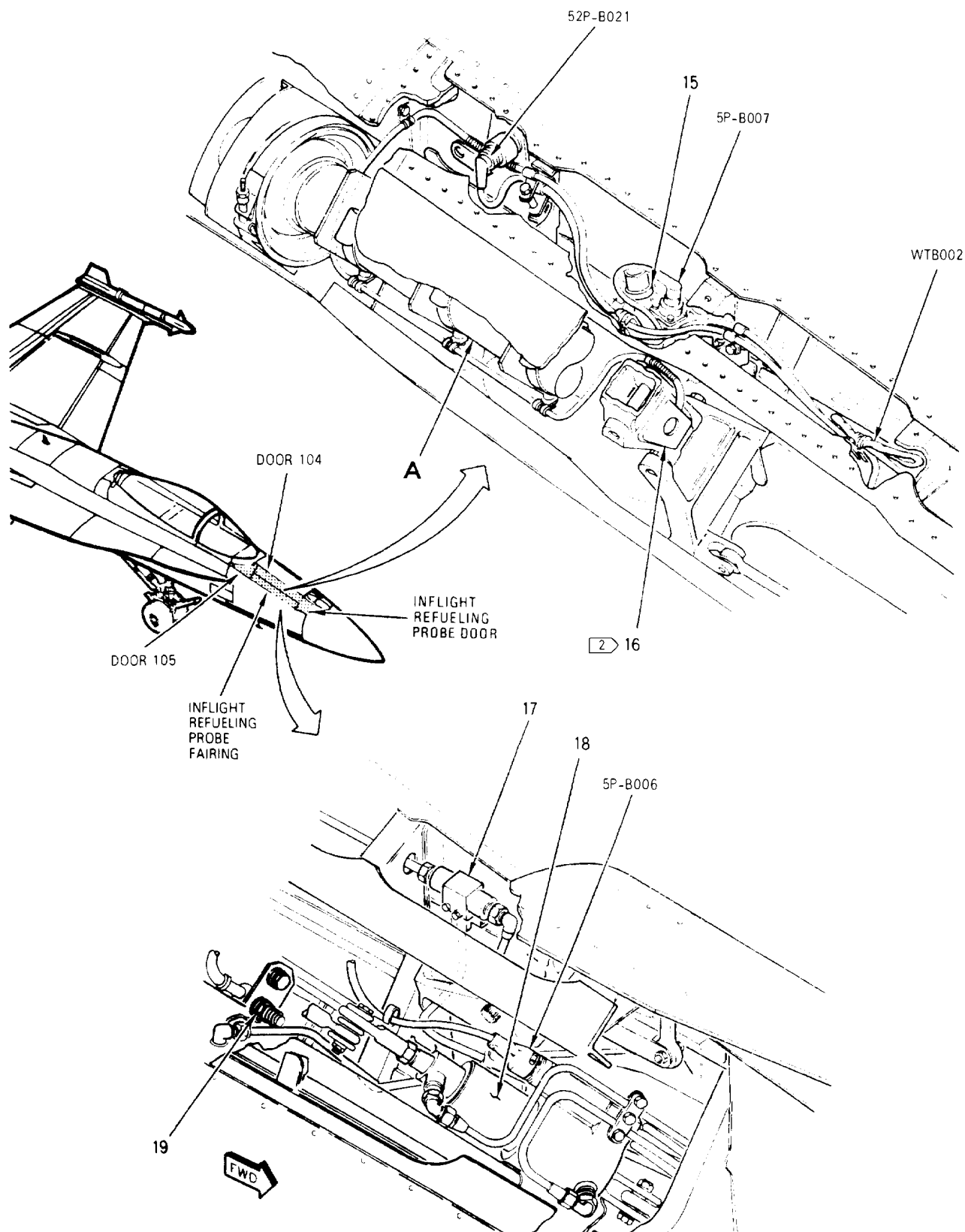


Figure 1. Inflight Refueling System Component Locator (Sheet 7)

00600107

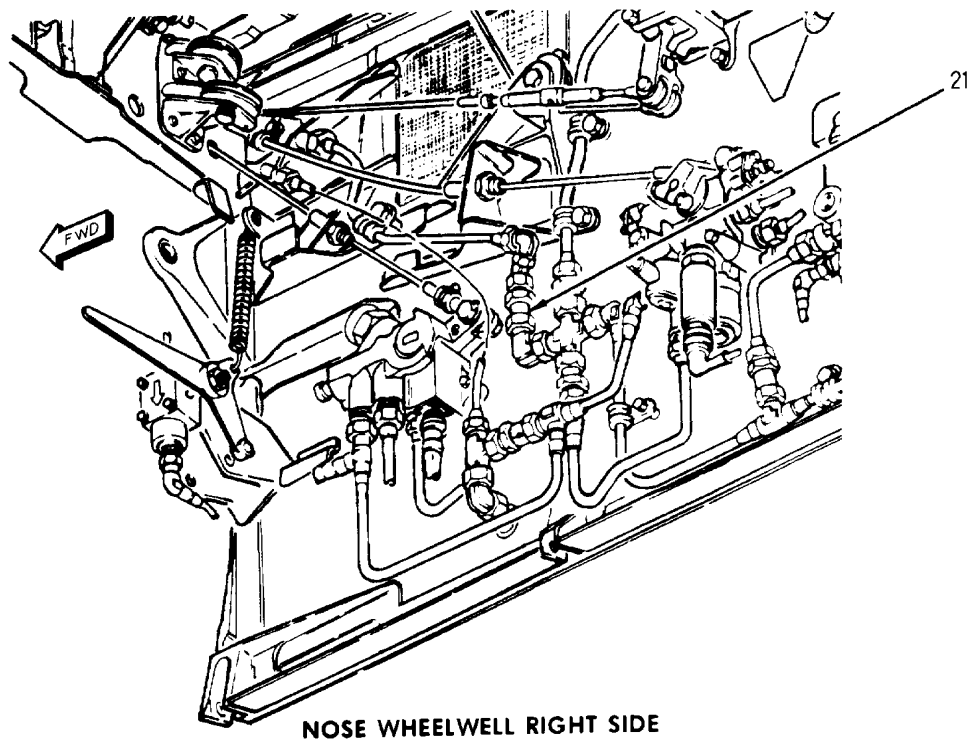
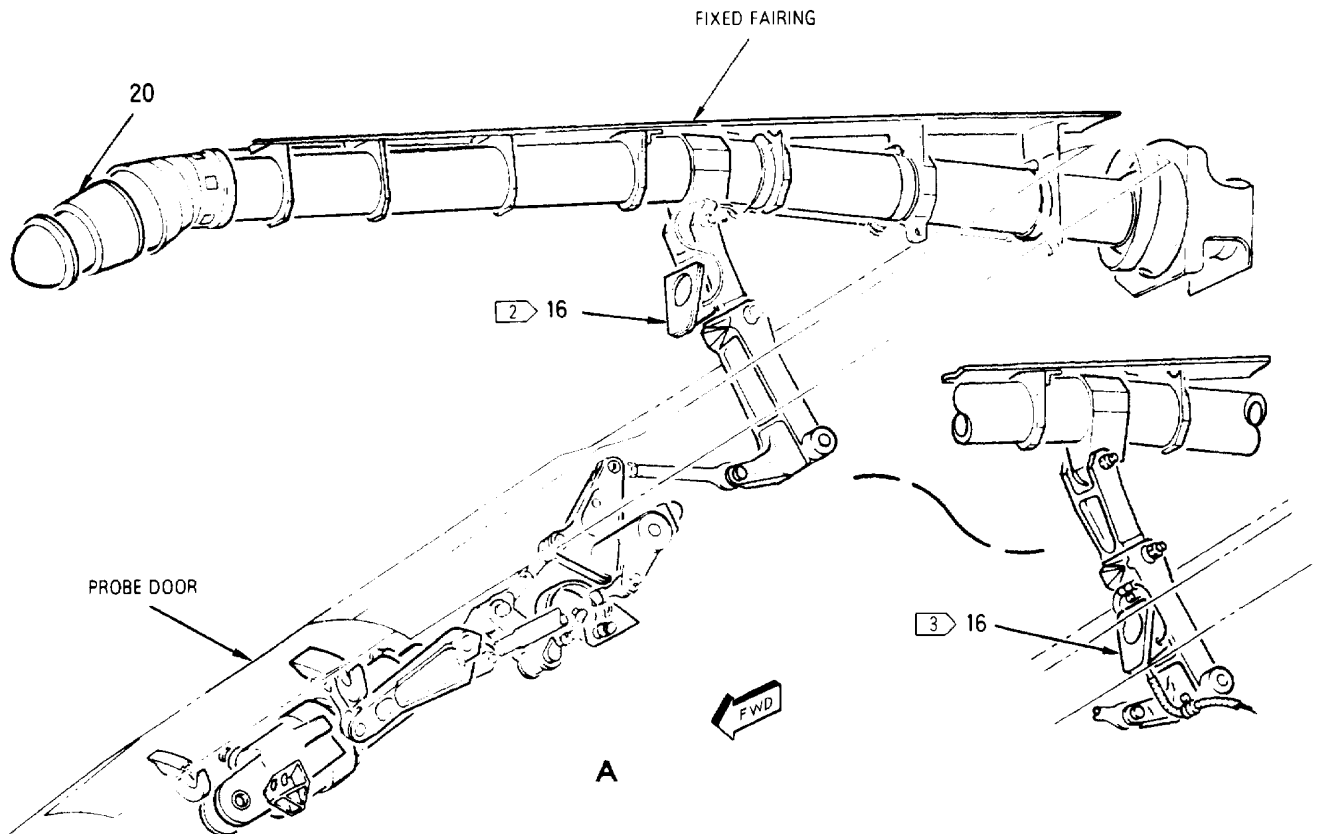


Figure 1. Inflight Refueling System Component Locator (Sheet 8)

Nomenclature	Index No.	Ref Des
AIR DATA COMPUTER CP-1334/A	9	70A-F001
APU ACCUMULATOR AND START VALVE ASSEMBLY	10	2L-F011
EMERGENCY INFLIGHT REFUELING DIRECTIONAL CONTROL VALVE	4	5L-D009
EMERGENCY LANDING GEAR MANUAL CONTROL VALVE ASSEMBLY	12	10L-G017
FUEL SYSTEM CONTROL PANEL PROBE CONTROL SWITCH	2	5A-H027 5S-H005
INFLIGHT REFUELING CHECK VALVE	13	5VAB613
INFLIGHT REFUELING DIRECTIONAL CONTROL VALVE	15	5L-B007
INFLIGHT REFUELING FLOODLIGHT	16	5DSB008
INFLIGHT REFUELING FLOODLIGHT TRANSFORMER	11	5T-B012
INFLIGHT REFUELING HYDRAULIC CHECK VALVE	21	5VAC646
INFLIGHT REFUELING PROBE ACTUATING CYLINDER (PROBE EXTEND LIMIT SWITCH IS PART OF ACTUATING CYLINDER)	18	5HP-B006
INFLIGHT REFUELING PROBE NOZZLE	20	5VAB526
INFLIGHT REFUELING PROBE RETRACT LIMIT SWITCH	19	5S-B010
INFLIGHT REFUELING SHUTTLE VALVE	17	5VAB572
LEFT DIGITAL DISPLAY INDICATOR IP-1317()	1	80A-H001
LEFT THROTTLE GRIP EXTERIOR LIGHTS SWITCH	3	52A-H049 7S-H003
NO. 3 RELAY PANEL ASSEMBLY	5	52A-E059
NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY	6	52A-D026
NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	8	52A-C057
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	7	52A-C159
SIGNAL DATA CONVERTER CV-3493/ASM-612	14	85A-N002

LEGEND

1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.





-  2 161353 THRU 161528.
-  3 161702 AND UP; ALSO 161353 THRU 161528, AFTER F/A-18 AFC 041.
-  4 161353 THRU 162909.
-  5 163092 AND UP.

Figure 1. Inflight Refueling System Component Locator (Sheet 9)

ORGANIZATIONAL MAINTENANCE

TESTING AND TROUBLESHOOTING

REFUEL/TRANSFER TEST

EXTERNAL FUEL SYSTEM

Reference Material

Fuel System	A1-F18AC-460-300
Fuel System Testing and Troubleshooting	A1-F18AC-460-200
Troubleshooting - Refuel	WP008 00
Troubleshooting - Transfer	WP009 00
Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
External Fuel System Refuel Test, Table 1	2
External Fuel System Test Component Locator, Figure 4	22
External Fuel System Transfer Test, Table 2	7
Fuel System Test Set Controls and Displays, Figure 3	20
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 2	19
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 1	17
Ground Air Pressurization Hookup, Figure 5	24

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replacement and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit Tank 4 Motive Flow Shutoff Valve, and Raised In- verted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—

Table 1. External Fuel System Refuel Test

Procedure	Normal Indication	Remedy for Abnormal Indication								
<p>System Required Components</p> <p>All system components installed.</p> <p>Related Systems Required</p> <p>Electrical System Hydraulic SystemPower Plant and Related Systems Secondary Power System Multipurpose Display Group</p> <p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>External Fuel System Schematic (A1-F18AC-460-500, WP006 00), may be used while doing this test.</p> <p>Component locations are shown in figure 4.</p>										
<p>1. PREPARATION.</p> <p>a. Set switches on FUEL system control panel as listed below:</p> <p>EXT TANKS WING - NORM CTR - NORM DUMP - OFF PROBE - RETRACT</p> <p>b. On cockpit EXT LT control panel assembly make sure the INTR WING switch is set to NORM.</p> <p>c. Make sure all refueling pre-cautions are done (A1-F18AC-PCM-000).</p> <p>d. If table 2, External Fuel Sys-tem Transfer Test, is to be done after this test, aircraft should be configured as listed below:</p> <table><tr><td>External Tanks Installed</td><td>Maximum INTR</td></tr><tr><td>1</td><td>8000 lb</td></tr><tr><td>2</td><td>6000 lb</td></tr><tr><td>3</td><td>4000 lb</td></tr></table>	External Tanks Installed	Maximum INTR	1	8000 lb	2	6000 lb	3	4000 lb		
External Tanks Installed	Maximum INTR									
1	8000 lb									
2	6000 lb									
3	4000 lb									

Table 1. External Fuel System Refuel Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>2. REFUEL TEST. (QA)</p> <p>a. Do refueling using electrical power preparation (A1-F18AC-PCM-000).</p>		
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;">WARNING</div> <p>To prevent damage to aircraft structure and/or fuel spillage, refueling must be stopped immediately if tank pressure indicator shows red. Do not restart refueling, even if indicator returns to green, until malfunction has been corrected.</p> <p>To prevent possible damage to fuel system, fuel pressure from servicing equipment shall not exceed 55 psi.</p> <p style="text-align: center;">NOTE</p> <p>External tanks will refuel slowly until internal tanks are in precheck or full.</p>		
b. Monitor FUEL QTY indicator (cockpit), tank pressure/fuel flow indicator (door 8), and gallons delivered meter on fuel servicing equipment and start refueling.	<p>1. All internal tanks fuel amounts increasing. Air flows from vent port vertical stabilizer.</p> <p>2. External tank(s) fuel amounts increasing. Air flows from external tank vent.</p> <p>3. Fuel flow indicator rotating.</p> <p>4. Tank pressure indicator green.</p>	<p>Refer to WP003 00.</p> <p>Do applicable substeps below:</p> <p>a. If left or right external fuel tank does not accept fuel, do table 12, WP008 00.</p> <p>b. If centerline external fuel tank does not accept fuel, do table 13, WP008 00.</p> <p>Refer to WP003 00.</p> <p>Do Fuel Pressurization and Vent System Test (WP021 00).</p>

Table 1. External Fuel System Refuel Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>3. ELECTRICAL PRECHECK TEST (161353 THRU 161761 BEFORE F/A-18 AFC 39). (QA)</p> <div style="text-align: center;"> <div style="border: 2px solid black; padding: 5px; display: inline-block;">WARNING</div> </div> <p>To prevent possible fuel spillage, steps a thru f must be done during the first 3 minutes of the refueling operation.</p> <p style="text-align: center;">NOTE</p> <p>To do a satisfactory precheck, the aircraft requires a minimum of 20 psi fuel pressure at the refueling nozzle.</p>		
a. On FUEL CHECK PANEL (door 8), set and hold L, R, and C EXT F TK CHK switches to precheck. Turn master precheck handle to UP PRECHECK.	1. Left external tank stops increasing.	Do table 1, WP008 00.
	2. Right external tank stops increasing.	Do table 2, WP008 00.
	3. Centerline external tank stops increasing.	Do table 3, WP008 00.
	4. All internal tanks fuel amounts stop increasing within 45 seconds. Fuel flow indicator stops rotating.	Do table 2, WP003 00.
b. Release C EXT F TK CHK (switch returns to normal).	Centerline tank only resumes refueling.	Do table 4, WP008 00.
c. Set and hold C EXT F TK CHK switch to precheck.	Centerline external tank fuel amount stops increasing.	Do table 3, WP008 00.
d. Release L EXT F TK CHK switch (switch returns to normal).	Left external tank only resumes refueling.	Do table 5, WP008 00.
e. Set and hold L EXT F TK CHK switch to precheck.	Left external tank fuel amount stops increasing.	Do table 1, WP008 04.
f. Release R EXT F TK CHK switch (switch returns to normal).	Right external tank only resumes refueling.	Do table 6, WP008 00.
g. Release L and C EXT F TK CHK switches.	All external tanks resume refueling.	

Table 1. External Fuel System Refuel Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
4. ELECTRICAL PRECHECK TEST (161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39).		
<div style="text-align: center;"> WARNING </div> <p>To prevent possible fuel spillage, steps a and b must be done during the first 3 minutes of the refueling operation.</p> <p style="text-align: center;">NOTE</p> <p>To do a satisfactory precheck, the aircraft requires a minimum of 20 psi fuel pressure at the refueling nozzle.</p>		
a. On FUEL CHECK PANEL (door 8), set and hold EXT TK PRCHK SW to precheck. Turn master precheck handle to UP PRECHECK.	1. Left external tank stops increasing. 2. Right external tank stops increasing. 3. Centerline external tank stops increasing. 4. All internal tanks fuel amounts stop increasing within 45 seconds. Fuel flow indicator stops rotating.	Do table 14, WP008 00. Do table 14, WP008 00. Do table 14, WP008 00. Do table 2, WP003 00.
b. Release EXT TK PRCHK SW (switch returns to normal).	1. Centerline tank resumes refueling. 2. Left external tank resumes refueling. 3. Right external tank resumes refueling.	Do table 4, WP008 00. Do table 5, WP008 00. Do table 6, WP008 00.
5. MANUAL PRECHECK TEST. (QA)		
a. Set all external tank manual precheck valves to precheck (A1-F18AC-PCM-000).	All external tank fuel amounts stop increasing.	Do table 7, WP008 00.

Table 1. External Fuel System Refuel Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication								
<p>b. Set all external tank manual precheck valves to normal LOCK position (A1-F18AC-PCM-000).</p> <p>6. STOP REFUEL TEST. (QA)</p> <p>a. On FUEL system control panel, set EXT TANKS WING and CTR switches to STOP.</p> <p>b. On FUEL system control panel, set EXT TANKS CTR switch to NORM.</p> <p>c. On FUEL system control panel, set EXT TANKS CTR switch to STOP.</p> <p>d. On FUEL system control panel, set EXT TANKS WING switch to NORM.</p> <p>e. On FUEL system control panel, set EXT TANKS CTR switch to NORM.</p> <p>7. FINAL. (QA)</p> <p>a. Allow all external tanks to fill high level shutoff.</p>	<p>All external tanks resume refueling.</p> <p>1. Centerline external tank stops increasing.</p> <p>2. Left and right external tanks stop increasing.</p> <p>Centerline external tank resumes refueling.</p> <p>Centerline external tank fuel amount stops increasing.</p> <p>Left and right external wing tanks fuel amounts increasing.</p> <p>Centerline external tank resumes refueling.</p>	<p>Replace applicable aircraft fuel tank FPU-6/A or FPU-8/A (A1-F18AC-460-300, WP088 01).</p> <p>Do table 8, WP008 00.</p> <p>Do table 9, WP008 00.</p> <p>Do table 10, WP008 00.</p> <p>Do table 8, WP008 00.</p> <p>Do table 11, WP008 00.</p> <p>Do table 10, WP008 00.</p>								
<p style="text-align: center;">NOTE</p> <p>If an External Fuel System Transfer Test is to be done following this test, do not fill the internal fuel tanks to maximum; enough space must be allowed for external fuel tanks to transfer.</p>										
<p>b. If a transfer test is not to be done, continue to step c. If a transfer test is to be done, allow internal fuel tanks to fill a minimum of 1000 lb in both no. 2 and no. 3 fuel tanks and a maximum INTR as listed below:</p> <table><tr><td>External Tanks Installed</td><td>Maximum INTR</td></tr><tr><td>1</td><td>8000 lb</td></tr><tr><td>2</td><td>6000 lb</td></tr><tr><td>3</td><td>4000 lb</td></tr></table>	External Tanks Installed	Maximum INTR	1	8000 lb	2	6000 lb	3	4000 lb		
External Tanks Installed	Maximum INTR									
1	8000 lb									
2	6000 lb									
3	4000 lb									

Table 1. External Fuel System Refuel Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
c. Rotate master precheck handle to DOWN OFF and fill internal fuel tanks to normal high level shutoff. d. Turn off and disconnect fuel servicing equipment. e. Close door 8 (A1-F18AC-LMM-010).		

Table 2. External Fuel System Transfer Test

Procedure	Normal Indication	Remedy for Abnormal Indication																
<div>System Required Components</div> <div>All system components installed.</div> <div>Related Systems Required</div> <div>Electrical System</div> <div>Hydraulic System</div> <div>Power Plant and Related Systems</div> <div>Secondary Power System</div> <div>Multipurpose Display Group</div> <div>Support Equipment Required</div> <table><thead><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr></thead><tbody><tr><td>1317AS100-1</td><td>Nitrogen Servicing Unit</td></tr><tr><td>74D460108-1001</td><td>Fuel System Test Set</td></tr><tr><td>74D460108-1003</td><td>Fuel System Test Set</td></tr><tr><td>74D420030-1001</td><td>Proximity Switch Control</td></tr><tr><td>74D460125-1001</td><td>Special Purpose Fuel Test Set Cable</td></tr><tr><td>(161353 THRU 161359 (LAND BASE ONLY))</td><td></td></tr><tr><td>—</td><td>External Air Source</td></tr></tbody></table> <div>Materials Required</div> <div>None</div>			Part Number or Type Designation	Nomenclature	1317AS100-1	Nitrogen Servicing Unit	74D460108-1001	Fuel System Test Set	74D460108-1003	Fuel System Test Set	74D420030-1001	Proximity Switch Control	74D460125-1001	Special Purpose Fuel Test Set Cable	(161353 THRU 161359 (LAND BASE ONLY))		—	External Air Source
Part Number or Type Designation	Nomenclature																	
1317AS100-1	Nitrogen Servicing Unit																	
74D460108-1001	Fuel System Test Set																	
74D460108-1003	Fuel System Test Set																	
74D420030-1001	Proximity Switch Control																	
74D460125-1001	Special Purpose Fuel Test Set Cable																	
(161353 THRU 161359 (LAND BASE ONLY))																		
—	External Air Source																	

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this test.</p> <p>Component locations are shown in figure 4.</p>		
<p>1. PREPARATION.</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable (fig 1 or fig 2) 74D462025-1003 per sub-steps below:</p> <p>(1) On fuel system test set, remove J1 protective cap.</p> <p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell.</p> <p>(4) Position test set near right wing tip.</p>		
<p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity nose wheelwell test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck, this hookup is limited to land based aircraft only.</p>		
<p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per sub-steps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p>		

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) On fuel system test set, remove J2 protective cap (fig 2).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 1).</p> <p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 3), set switches as listed below:</p> <p>S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - WING S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 FUEL INDICATOR - Selector knob to EXT CTR</p>		

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>f. On 74D460108-1003 test set, set switches as listed below:</p> <p>S12 - OFF S13 - NORM S14 - OFF S15 - OFF</p>		
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> WARNING </div> <p>To prevent death or injury to personnel and damage to aircraft, all warnings and cautions relating to external electrical power application and removal (application - weight off wheels, removal - weight off wheels), shall be observed while using proximity switch control box. Failure to comply may cause aircraft systems to be energized to an inflight condition.</p>		
<p>g. Hook up proximity switch control unit (A1-F18AC-LMM-000).</p> <p>h. Set switches on proximity switch control unit as listed below:</p> <p>LEFT GEAR - NORM NOSE GEAR - NORM RIGHT GEAR - NORM</p> <p>i. Set switches on FUEL system control panel as listed below:</p> <p>EXT TANKS WING - NORM CTR - NORM DUMP - OFF PROBE - RETRACT</p> <p>j. On cockpit EXT LT control panel assembly, make sure the INTR WING switch is set to NORM.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>l. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>m. On fuel system test set, close CB1 circuit breaker.</p> <p>n. On 74D460108-1003 test set, set switch S15 to ON.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p>	<p>Replace test set.</p> <p>Do table 8, WP009 00.</p>

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication										
<p>o. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>p. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle.</p> <p>q. Release D3 FUEL INDICATOR selector knob.</p> <p>r. Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).</p> <p>s. Make sure all refueling precautions are done (A1-F18AC-PCM-000).</p> <p>t. Prepare aircraft for APU or engine operation (A1-F18AC-LMM-000).</p> <p>u. Refuel aircraft (A1-F18AC-PCM-000). Precheck internal fuel tanks until external fuel tanks are full.</p> <p>v. Rotate master precheck handle to DOWN OFF and allow internal fuel tanks to fill to a minimum of 1000 lb in both tanks 2 and 3 and a maximum INTR as listed below:</p> <table><tr><td>External Tanks</td><td>Maximum</td></tr><tr><td><u>Installed</u></td><td><u>INTR</u></td></tr><tr><td>1</td><td>8000 lb</td></tr><tr><td>2</td><td>6000 lb</td></tr><tr><td>3</td><td>4000 lb</td></tr></table>	External Tanks	Maximum	<u>Installed</u>	<u>INTR</u>	1	8000 lb	2	6000 lb	3	4000 lb	<p>OFF flag black and ID flag black.</p> <p>Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. RIGHT counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTR needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.</p> <p>Selector knob returns to FEED, LEFT, RIGHT, and TOTAL LBS counters return without stopping or jerking.</p>	<p>Replace test set.</p> <p>Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gauging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.</p> <p>Replace test set.</p>
External Tanks	Maximum											
<u>Installed</u>	<u>INTR</u>											
1	8000 lb											
2	6000 lb											
3	4000 lb											

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
2. TRANSDUCER CHANNEL BIT. (QA)		
a. On test set, set switch S2 to BIT (fig 3). Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 8, WP009 00.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 8, WP009 00.
c. Release switch S9.		
3. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>Only the EXT AIR pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs, all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to OFF.		
b. Set switch S1 to EXT AIR. Record D1 display (non-nulled).		
c. Set switch S9 to NULL and release.	D1 displays 00.0.	Do table 6, WP036 00.
4. TEST.		
a. On no. 8 circuit breaker/relay panel assembly, close FUEL TK PRESS circuit breaker.		
<p style="text-align: center;">NOTE</p> <p>This test to be done when troubleshooting is required. To verify operation of external tank after installation, refer to A1-F18AC-LMM-000.</p>		
b. Operate engines at ground IDLE (A1-F18AC-LMM-000) or apply 100 psi nitrogen/air pressure source (figure 5).	D1 displays 00.0.	Make sure arresting hook is up, probe retracted and BLEED AIR/AUG knob pulled (fig 4), then do table 1, WP009 00.

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
c. On proximity switch control, set LEFT GEAR switch to WT OFF WHL and observe FUEL QTY indicator.	1. D1 displays 15.0 to 18.0 PSI.	Increase engine power setting to 72%, if D1 does not display 15 to 18 PSI, do table 2, WP009 00.
	2. EXT CTR LEFT counter shows centerline external tank fuel amount decreasing.	Do table 3, WP009 00.
	3. EXT WING LEFT counter shows left external tank fuel amount decreasing.	Do table 3, WP009 00.
	4. EXT WING RIGHT counter shown right external tank fuel amount decreasing.	Do table 3, WP009 00.
	5. On Left Digital Display Indicator IP-1317(), EXT TANK displayed.	Do table 3, WP010 00.
5. EXT TANKS SWITCH TEST. (QA)		
a. On FUEL system control panel, set EXT TANKS WING and CTR switches to STOP.	All external tanks fuel amounts stop decreasing.	Do table 4, WP009 00.
b. On FUEL system control panel, set EXT TANKS CTR switch to NORM.	FUEL QTY indicator EXT CTR, LEFT counter shows fuel amount decreasing.	Do table 5, WP009 00.
c. On FUEL system control panel, set EXT TANKS CTR switch to STOP.	FUEL QTY indicator EXT CTR, LEFT counter show fuel amount not decreasing.	Do table 4, WP009 00.
d. On FUEL system control panel, set EXT TANK WING switch to NORM.	FUEL QTY indicator EXT WING, LEFT and RIGHT counter show fuel amount decreasing.	Do table 5, WP009 00.
e. On FUEL system control panel, set EXT TANK WING switch to STOP.	FUEL QTY indicator EXT WING, LEFT and RIGHT counter show fuel amount not decreasing.	Do table 4, WP009 00.
f. On FUEL system control panel, set EXT TANKS WING and CTR switches to NORM.	All external tanks fuel amounts decreasing.	Do table 3, WP009 00.

Table 2. External Fuel System Transfer Test (Continued)

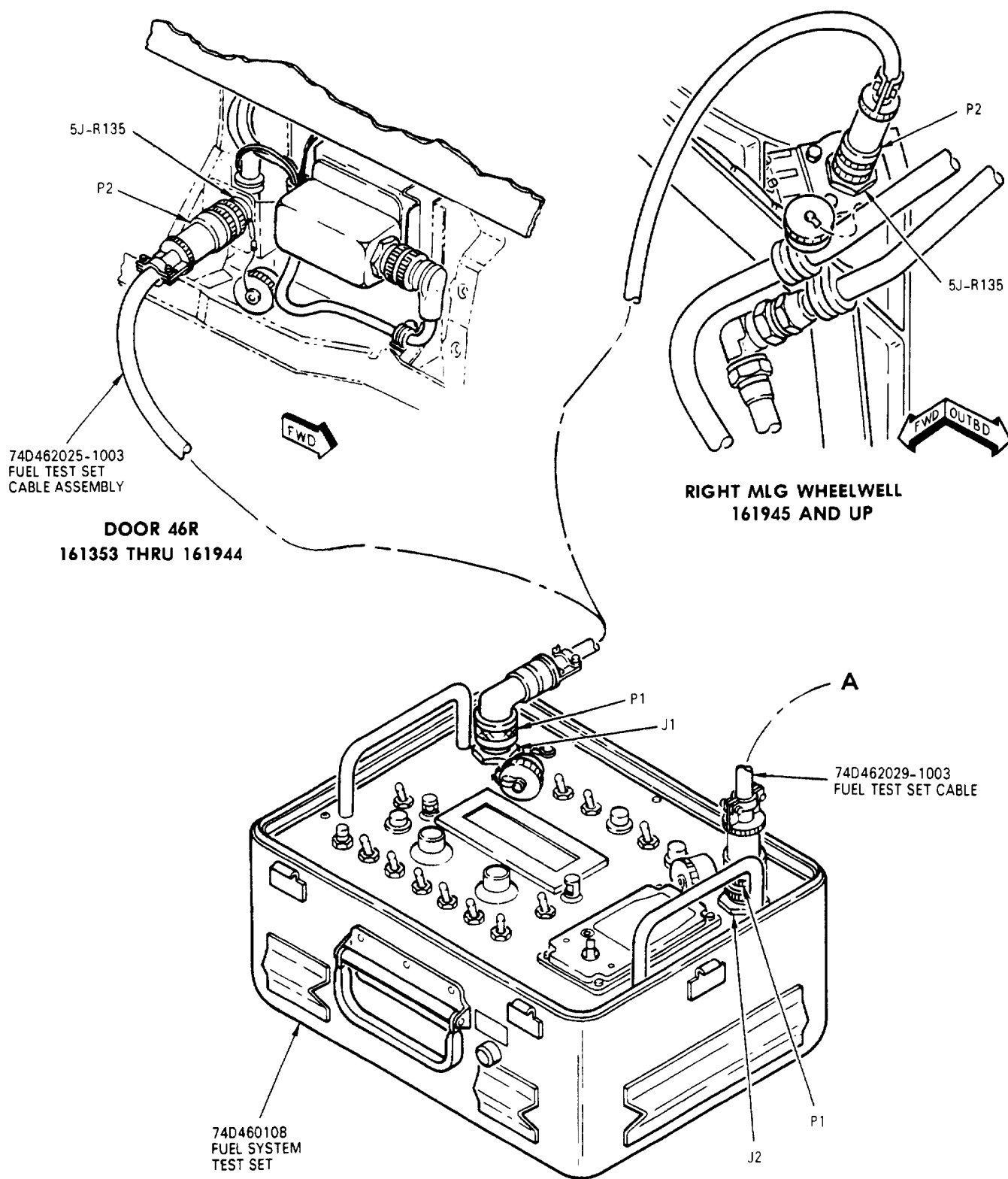
Procedure	Normal Indication	Remedy for Abnormal Indication
6. PROBE TEST. (QA)	<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px 0;">WARNING</div> <p>If engines are being used for testing; to prevent injury to personnel or damage to inflight refueling probe, make sure probe area is clear.</p>	
a. On FUEL system control panel, set PROBE control switch to EXTEND.		Do table 6, WP009 00.
		Do table 1, WP005 00.
b. On FUEL system control panel, set PROBE control switch to RETRACT.	1. D1 displays air pressure increasing to 15 to 18 PSI.	Do table 2, WP009 00.
	2. Probe retracts (if testing using engines).	Do table 3, WP005 00.
7. ARRESTING GEAR TEST. (QA)	<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px 0;">WARNING</div> <p>To prevent injury to personnel or damage to equipment, the arresting gear safety pin must be installed.</p>	
a. Make sure the arresting gear safety pin is installed (A1-F18AC-PCM-000).		
b. Set arresting HOOK control handle down.		Do table 7, WP009 00.
c. Set arresting HOOK control handle up.		Do table 2, WP009 00.

Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>8. OVERRIDE TEST. (QA)</p> <p>a. On proximity switch control, set LEFT GEAR switch to NORM.</p> <p>b. On FUEL system control panel, set EXT TANKS WING switch to OVERRIDE.</p> <p>c. On FUEL system control panel, set EXT TANKS WING switch to NORM.</p> <p>d. On FUEL system control panel, set EXT TANK CTR switch to OVERRIDE</p> <p>e. On FUEL system control panel, set EXT TANK CTR switch to NORM.</p> <p>9. AUTOMATIC TRANSFER TEST. (QA)</p>	<p>D1 displays air pressure decreasing to 0.00 PSI within 1 minute.</p> <p>D1 displays air pressure increasing to 15.0 to 18.0 PSI. All external tanks fuel amounts decreasing.</p> <p>D1 displays air pressure decreasing to 00.0 PSI within 1 minute. All external tanks fuel amounts not decreasing.</p> <p>D1 displays air pressure increasing to 15 to 18 PSI. All external tanks fuel amounts decreasing.</p> <p>D1 displays air pressure decreasing to 00.0 PSI within 1 minute. All external tanks fuel amounts not decreasing.</p>	<p>Do table 1, WP009 00.</p> <p>Replace FUEL system control panel (A1-F18AC-460-300, WP104 00).</p> <p>Replace FUEL system control panel (A1-F18AC-460-300, WP104 00).</p> <p>Replace FUEL system control panel (A1-F18AC-460-300, WP104 00).</p> <p>Replace FUEL system control panel (A1-F18AC-460-300, WP104 00).</p>
<p style="text-align: center;">NOTE</p> <p>Step below required to verify automatic external tank transfer. If the EXT TANKS WING switches are inadvertently set to STOP and FUEL LO occurs, external fuel tanks will automatically transfer.</p>		
<p>a. Do substeps below:</p> <p>(1) On proximity switch control, set LEFT GEAR switch to WT OFF WHL.</p> <p>(2) On FUEL system control panel, set EXT TANKS WING and CTR switches to STOP.</p> <p>(3) On fuel system test set, set switch S7 to FUS (energized fuel low level relay no. 2).</p> <p>b. Allow external fuel tanks to transfer empty.</p>	<p>1. D1 displays air pressure increasing to 15.0 to 18.0 PSI.</p> <p>2. External fuel tanks decreasing.</p> <p>100 lb maximum fuel in each external tank after fuel level stops decreasing.</p>	<p>Isolate between 5K-C052 fuel low level relay no. 2 and no. 8 circuit breaker/relay panel assembly (A1-F18AC-420-300, WP030 00).</p> <p>Replace external tank refuel/transfer shutoff valve (A1-F18AC-460-300, WP090 00).</p>

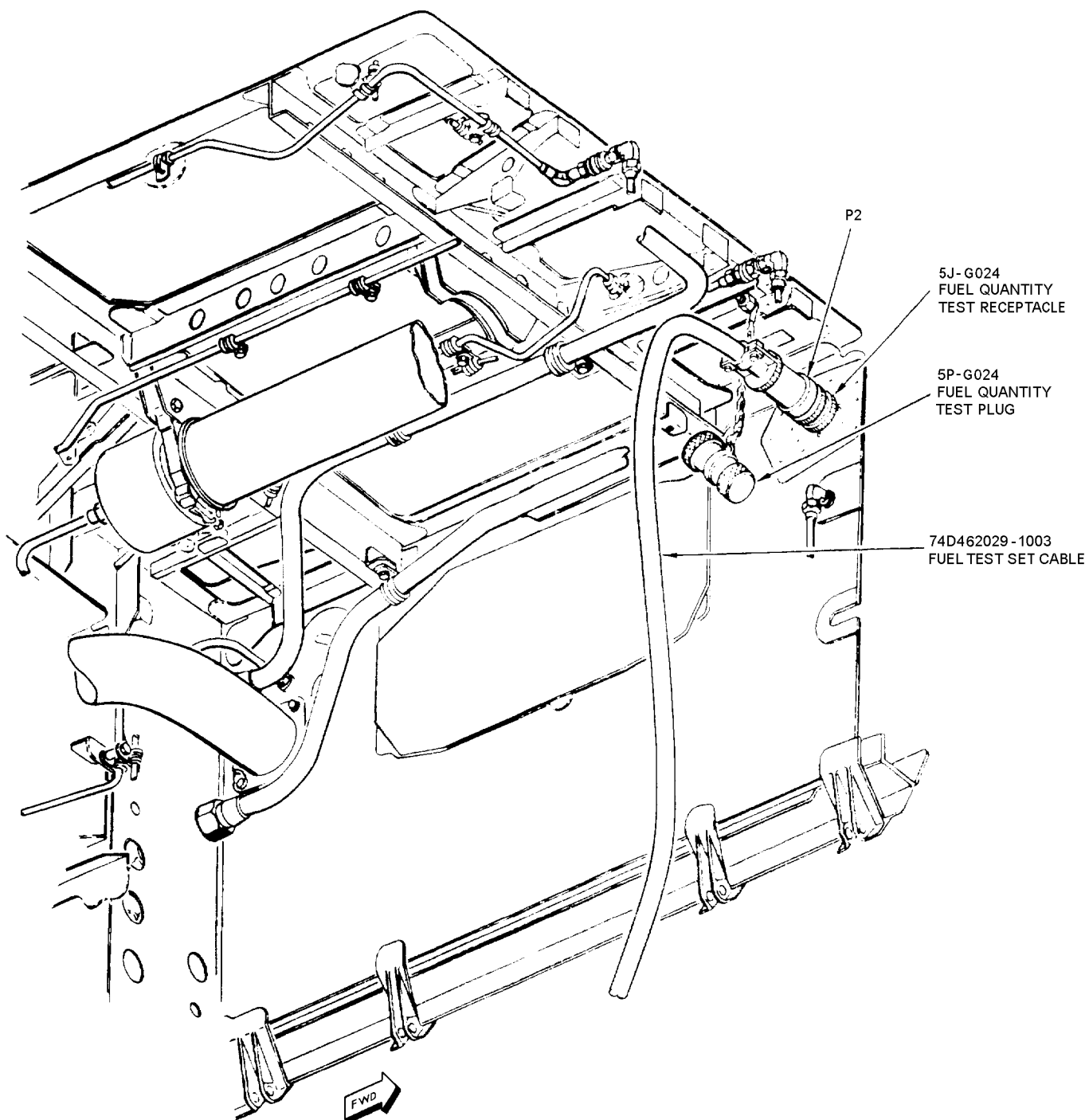
Table 2. External Fuel System Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>10. FINAL.</p> <p>a. On proximity switch control, set LEFT GEAR switch to NORM.</p> <p>b. Shut down engine (A1-F18AC-LMM-000) or turn off and disconnect nitrogen/external air (figure 5).</p> <p>c. Remove external electrical power (A1-F18AC-LMM-000).</p> <p>d. Disconnect proximity switch control unit (A1-F18AC-LMM-000).</p> <p>e. Disconnect fuel system test set.</p> <p>f. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM-010).</p>		



00700101

Figure 1. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 1 of 2)



A

NOSE WHEELWELL, LEFT SIDE

00700102

**Figure 1. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359
AFTER F/A-18 AFC 53 (Sheet 2)**

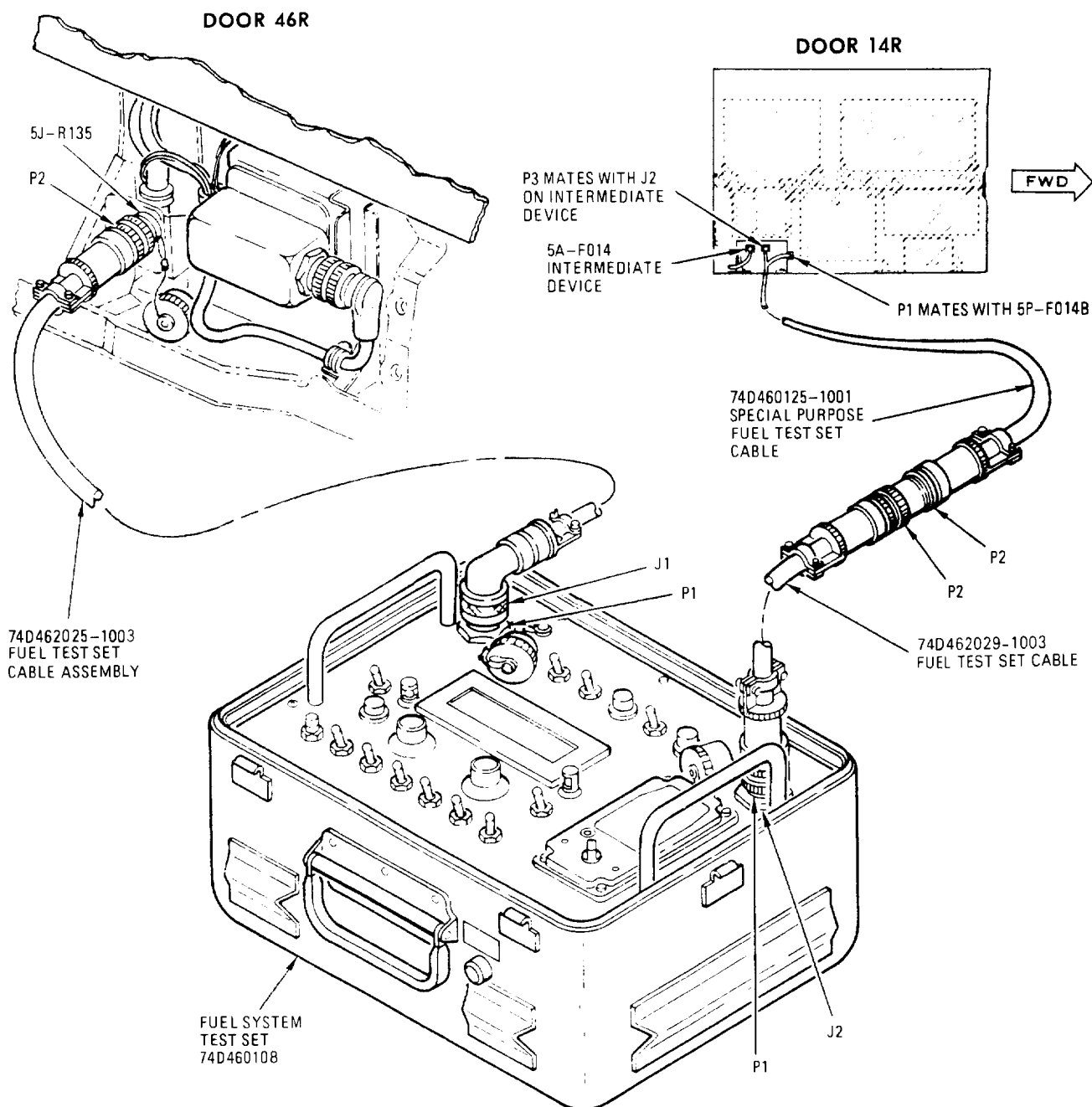
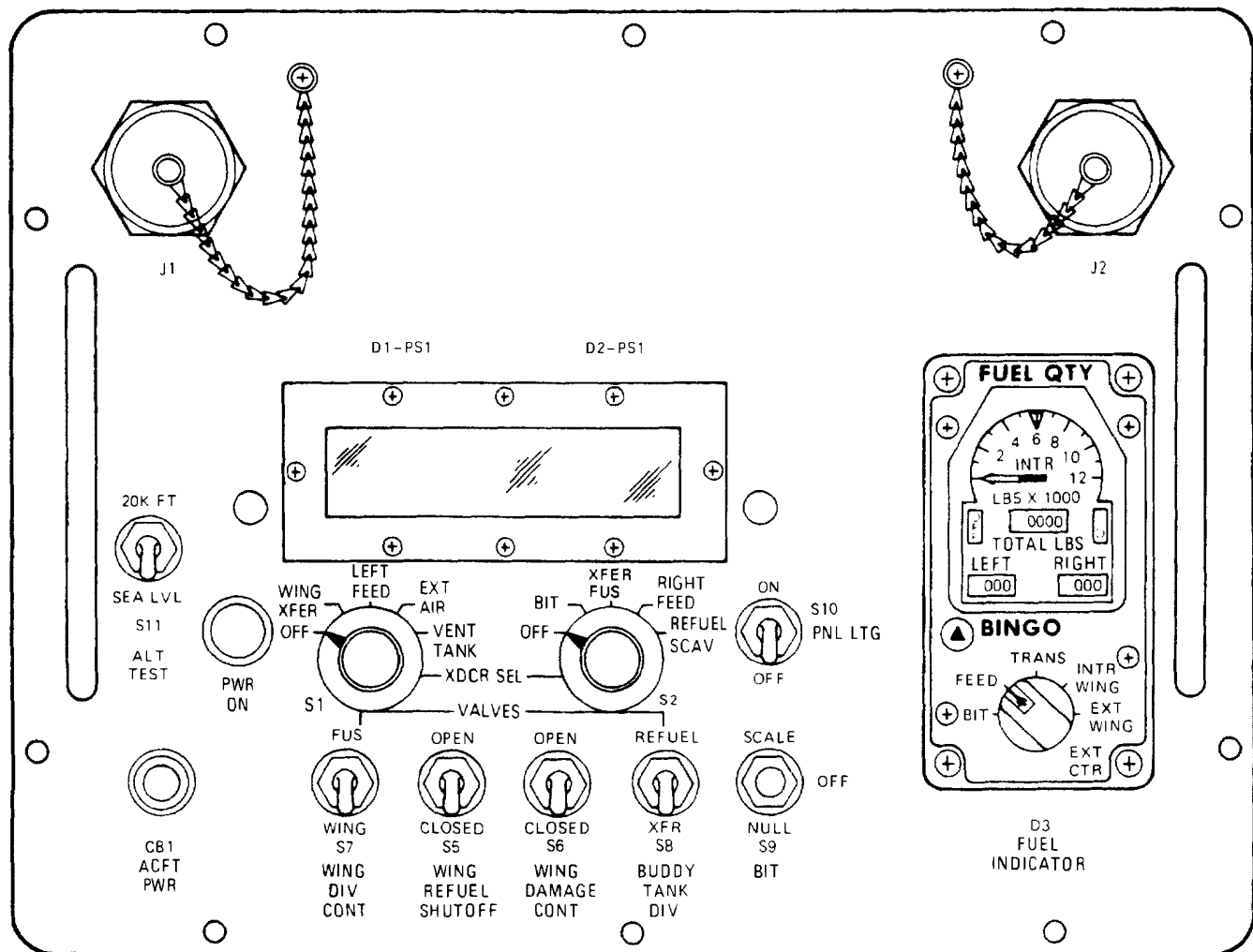


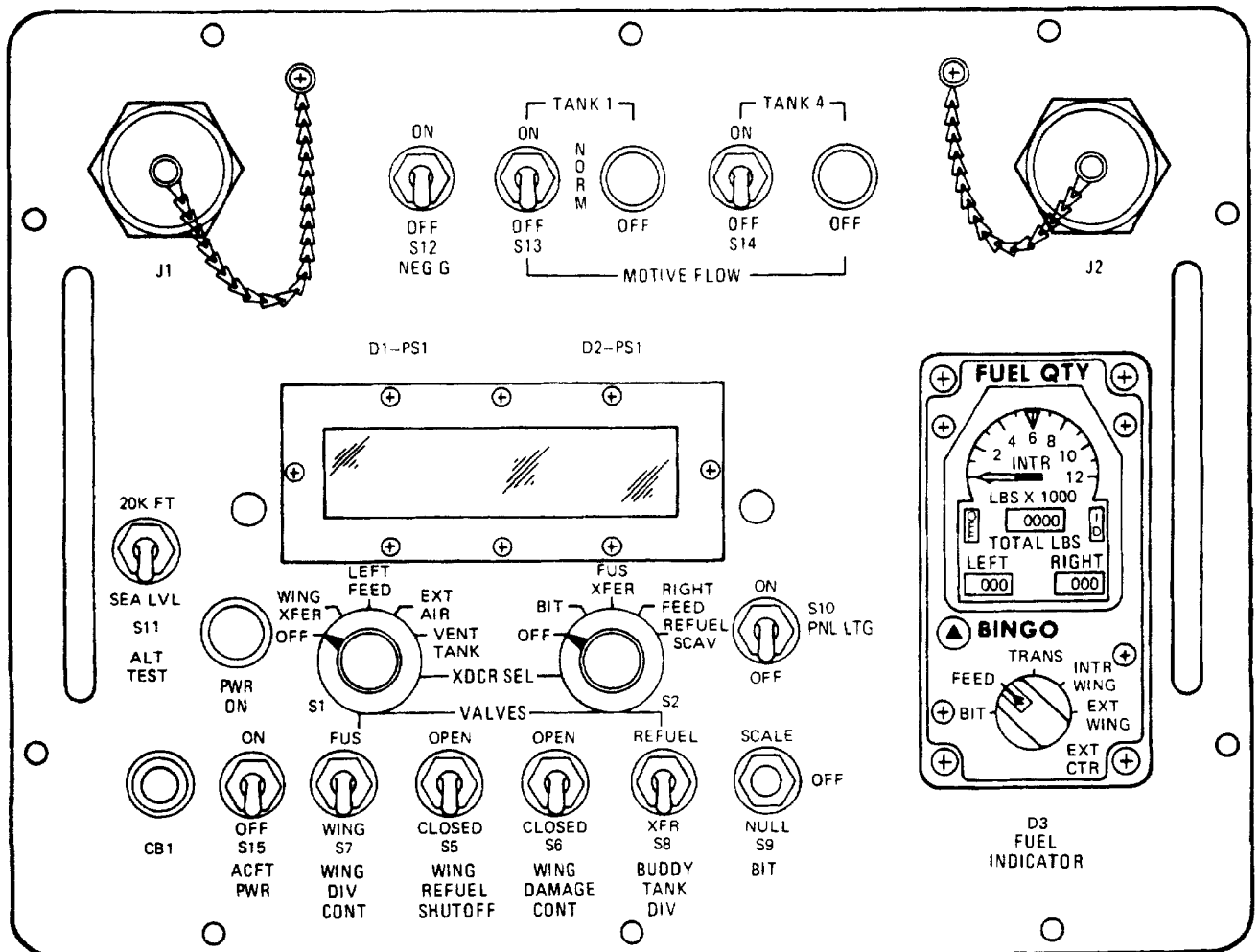
Figure 2. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 3. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 3. Fuel System Test Set Controls and Displays (Sheet 2)

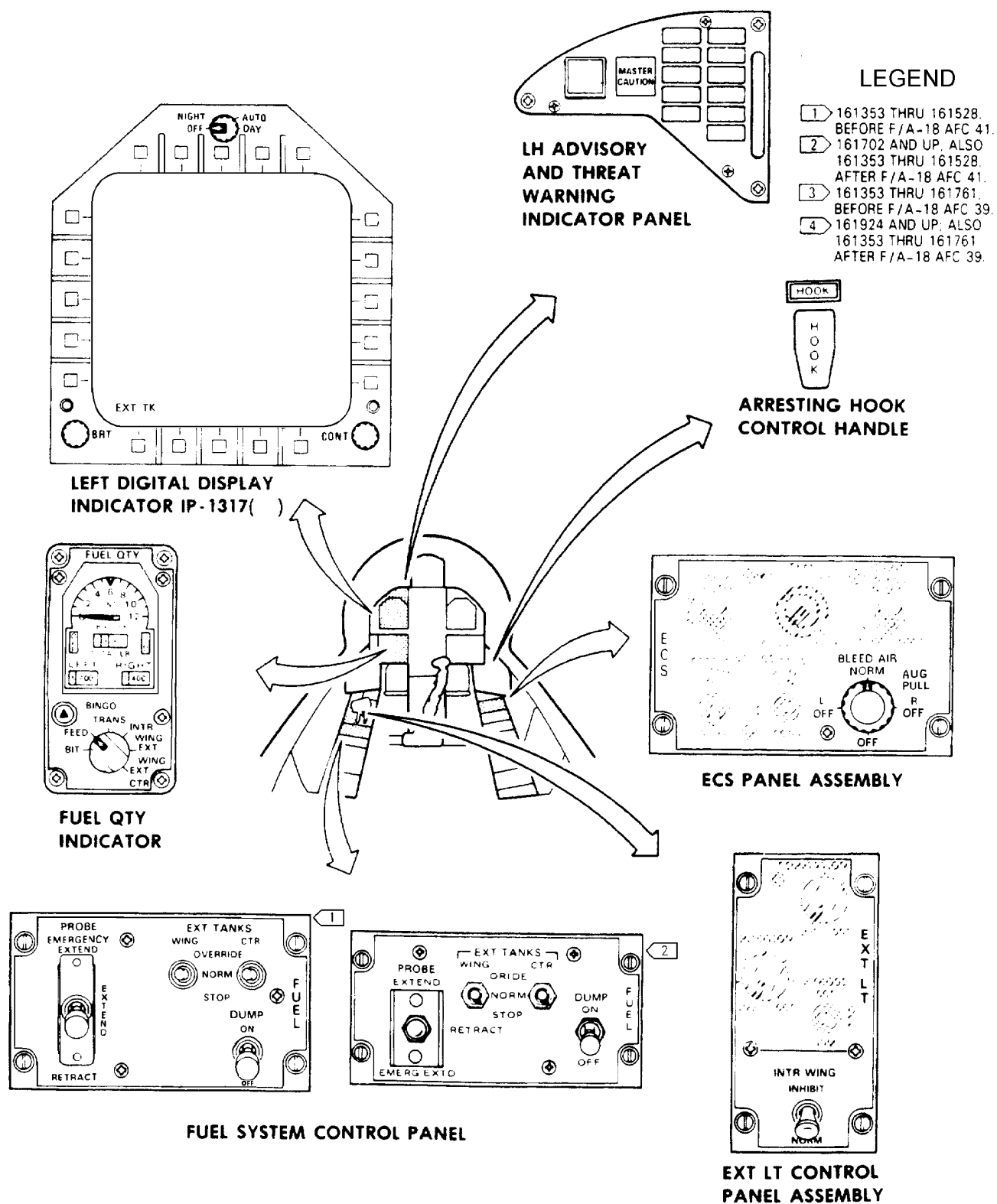
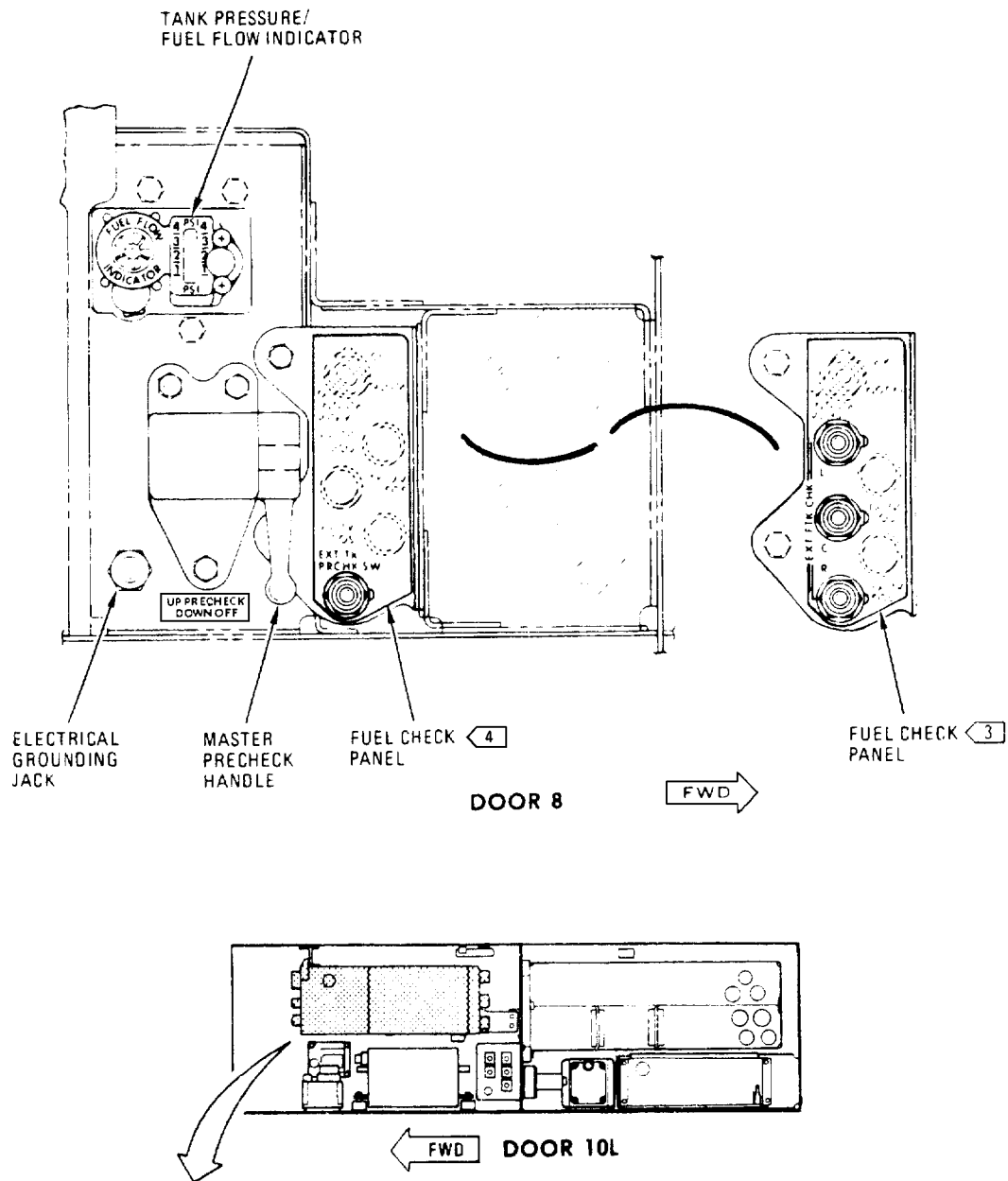


Figure 4. External Fuel System Test Component Locator (Sheet 1 of 2)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A5	5CBC050	FUEL LOW LVL WRN	L 28VDC

Figure 4. External Fuel System Test Component Locator (Sheet 2)

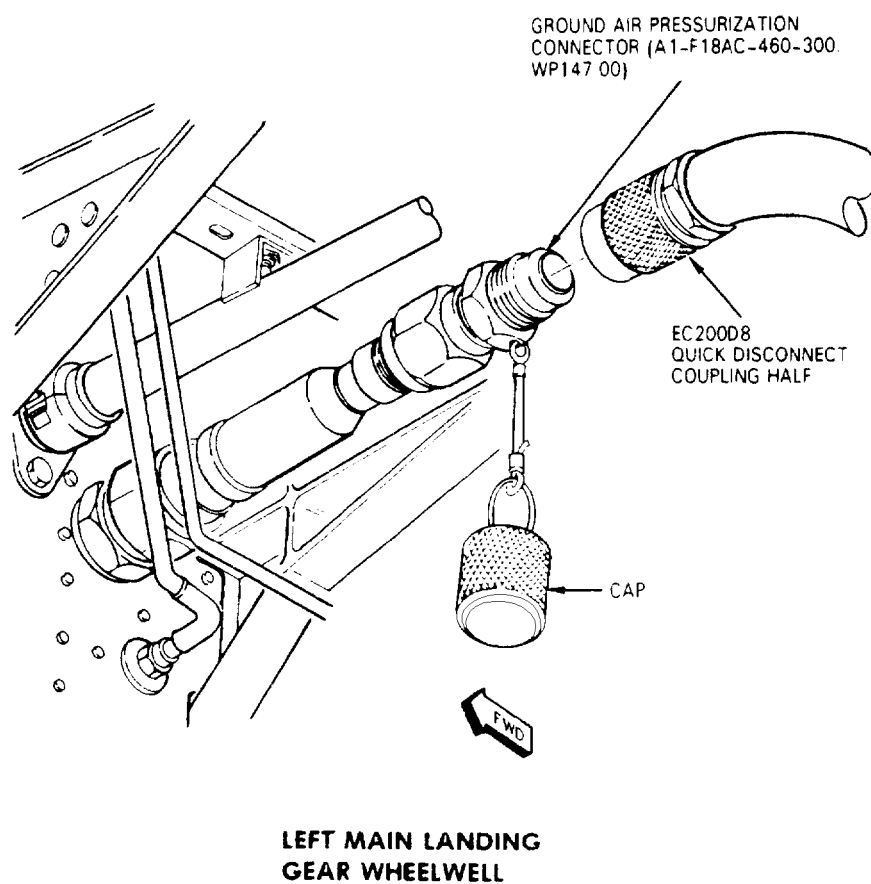


Figure 5. Ground Air Pressurization Hookup

ORGANIZATIONAL MAINTENANCE

TESTING AND TROUBLESHOOTING

TROUBLESHOOTING - REFUEL

EXTERNAL FUEL SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Centerline External Tank Did Not Precheck When Refueling Using Electrical Power - 161353	
THRU 161761 BEFORE F/A-18 AFC 39, Table 3	7
Centerline External Tank Does Not Resume Refueling, Table 4	9
Centerline External Tank Does Not Resume Refueling, Table 10	21
Centerline External Tank Increasing When EXT TANKS Switch Set to STOP, Table 8	16
Centerline External Tank Slow To Refuel Or Does Not Accept Fuel, Table 13	26
External Tank Did Not Precheck When Refueling Using Electrical Power - 161924 AND UP,	
ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, Table 14	29
External Tank Does Not Manually Precheck, Table 7	15
Left External Tank Did Not Precheck When Refueling Using Electrical Power - 161353	
THRU 161761 BEFORE F/A-18 AFC 39, Table 1	2
Left External Tank Does Not Resume Refueling, Table 5	11
Left Or Right External Tank Does Not Resume Refueling, Table 11	22
Left Or Right External Tank Increasing When EXT TANKS Switch Set To STOP, Table 9	18
Left Or Right External Tank Slow To Refuel Or Does Not Accept Fuel, Table 12	23
Right External Tank Did Not Precheck When Refueling Using Electrical Power - 161353	
THRU 161761 BEFORE F/A-18 AFC 39, Table 2	4
Right External Tank Does Not Resume Refueling, Table 6	13

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—

Table 1. Left External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39

Support Equipment Required				
NOTE				
Alternate item type designation or part numbers are listed in parentheses.				
Part Number or Type Designation	Nomenclature			
260-6XLP (AN/USM-311)	Multimeter			
Materials Required				
None				
NOTE				
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.				
Component locations are shown in WP011 00.				
Malfunction is caused by one of the items listed below:				
Aircraft Wiring External Fuel Tank Fuel Check Panel No. 8 Circuit Breaker/Relay Panel Assembly				
Procedure	No	Yes		
<div><div>CAUTION</div><p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale. To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p><div>52P-C159G 5P-B019</div><p>NOTE</p><p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p><div><div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div><div><div>a. Do substeps below.</div><div>(1) On master precheck valve move master precheck handle to UP PRECHECK (door 8).</div></div></div></div>				

Table 1. Left External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39 (Continued)

Procedure	No	Yes
(2) On FUEL CHECK PANEL, set and hold L EXT F TK CHK switch. Does external tank stop refueling?	b	c
b. On no. 8 circuit breaker/relay panel assembly (door 10L), is EXT FUEL TK CONT circuit breaker closed?	d	e
c. Release switch and continue refueling.	-	-
d. Close EXT FUEL TK CONT circuit breaker. If circuit breaker continues to open, isolate short to ground using Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) and do step m.	-	-
e. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) On left wing pylon, open door 502 (A1-F18AC-LMM-010).		
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) On FUEL CHECK PANEL, set and hold L EXT F TK CHK switch. Does 28vdc exist at 5P-Y025, pin 9 and ground at pin 10 and 11?	f	l
f. Do substeps below.		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-B019, pin 13 and ground at pin 10?	g	h
g. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159G.		
(3) Does continuity exist from 52P-C159G, pin 60 to 5P-B019, pin 13?	i	j
h. Does continuity exist from 5P-B019, pin 1 to 5P-Y025, pin 9?	i	k
i. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m.	-	-
j. Isolate between no. 8 circuit breaker/relay panel assembly wiring and EXT FUEL TK CONT circuit breaker (A1-F18AC-420-300, WP030 00) and do step m.	-	-

Table 1. Left External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39 (Continued)

Procedure	No	Yes
k. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step m.	-	-
l. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step m.	-	-
m. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-Y025, 52P-C159G and splice area WTY001		
(2) Doors 8, 10L and 502		
(3) FUEL CHECK PANEL	-	-

Table 2. Right External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter

Materials Required

None

NOTE

Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.

Component locations are shown in WP011 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring

External Fuel Tank

Fuel Check Panel

No. 8 Circuit Breaker/Relay Panel Assembly

Table 2. Right External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39 (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="margin-left: 40px;">52P-C159G 5P-B019</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) On master precheck valve, move master recheck handle to UP PRECHECK (door 8).		
(2) On FUEL CHECK PANEL, set and hold R EXT F TK CHK switch. Does external tank stop refueling?	b	c
b. On no. 8 circuit breaker/relay panel assembly (door 10L), is EXT FUEL TK CONT circuit breaker closed?	d	e
c. Release switch and continue refueling.	-	-
d. Close EXT FUEL TK CONT circuit breaker. If circuit breaker continues to open, isolate short to ground using Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) and do step m.	-	-
e. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) On right wing pylon, open door 502 (A1-F18AC-LMM-010).		

Table 2. Right External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39 (Continued)

Procedure	No	Yes
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) On FUEL CHECK PANEL, set and hold R EXT F TK CHK switch. Does 28vdc exist at 5P-Y025, pin 9 and ground at pin 10 and 11?	f	l
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-B019, pin 13 and ground at pin 10?	g	h
g. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159G.		
(3) Does continuity exist from 52P-C159G, pin 60 to 5P-B019, pin 13?	i	j
h. Does continuity exist from 5P-B019, pin 11 to 5P-Y025, pin 9?	i	k
i. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m.	-	-
j. Isolate between no. 8 circuit breaker/relay panel assembly wiring and EXT FUEL TK CONT circuit breaker (A1-F18AC-420-300, WP030 00) and do step m.	-	-
k. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step m.	-	-
l. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step m.	-	-
m. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-Y025, 52P-C159G and splice area WTY001		
(2) Doors 8, 10L and 502		
(3) FUEL CHECK PANEL	-	-

Table 3. Centerline External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39


Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation 260-6XLP (AN/USM-311)	Nomenclature Multimeter	
Materials Required		
None		
NOTE		
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.		
Component locations are shown in WP011 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring External Fuel Tank External Fuel Tank Fuel Check Panel No. 8 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
		
To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contact may use the RX1 scale.		
To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:		
52P-C159G 5P-B019		

Table 3. Centerline External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39 (Continued)

Procedure	No	Yes
<p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) On master precheck valve, move master precheck handle to UP PRECHECK (door 8).		
(2) On FUEL CHECK PANEL, set and hold C EXT F TK CHK switch. Does external tank stop refueling?	b	c
b. On no. 8 circuit breaker/relay panel assembly (door 10L), is EXT FUEL TK CONT circuit breaker closed?	d	e
c. Release switch and continue refueling.	-	-
d. Close EXT FUEL TK CONT circuit breaker. If circuit breaker continues to open, isolate short to ground using Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) and do step m.	-	-
e. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) On centerline pylon, open door 510 (A1-F18AC-LMM-010).		
(4) Disconnect aircraft centerline pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) On FUEL CHECK PANEL, set and hold C EXT F TK CHK switch. Does 28vdc exist at 5P-Y025, pin 9 and ground at pin 10 and 11?	f	l
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-B019, pin 13 and ground at pin 10?	g	h

Table 3. Centerline External Tank Did Not Precheck When Refueling Using Electrical Power - 161353 THRU 161761 BEFORE F/A-18 AFC 39 (Continued)

Procedure	No	Yes
g. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159G.		
(3) Does continuity exist from 52P-C159G, pin 60 to 5P-B019, pin 13?	i	j
h. Does continuity exist from 5P-B019, pin 12 to 5P-Y025, pin 9?	i	k
i. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m.	-	-
j. Isolate between no. 8 circuit breaker/relay panel assembly wiring and EXT FUEL TK CONT circuit breaker (A1-F18AC-420-300, WP030 00) and do step m.	-	-
k. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step m.	-	-
l. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step m.	-	-
m. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-Y025, 52P-C159G and splice area WTY001		
(2) Doors 8, 10L and 510		
(3) FUEL CHECK PANEL	-	-

Table 4. Centerline External Tank Does Not Resume Refueling

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 4. Centerline External Tank Does Not Resume Refueling (Continued)

NOTE		
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.		
Component locations are shown in WP011 00.		
Malfunction is caused by one of the items listed below:		
External Fuel Tank External Tank Precheck Switch FUEL CHECK PANEL 5K-C168 External Tank Precheck Relay		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/ jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>52P-C159F</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">Pin to pin test per procedural step.Shorts to ground.Shorts between surrounding pins on connectors.Shorts between shield and conductors.Shield continuity.		
a. Do substeps listed below		
(1) Turn off fuel servicing equipment.		
(2) Open centerline pylon door 510 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft centerline pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025 pin 9?	b	c
b. Replace external fuel tank (A1-F18AC-460-300, WP088 01).	-	-

Table 4. Centerline External Tank Does Not Resume Refueling (Continued)

Procedure	No	Yes
c. On 161353 THRU 161761 BEFORE F/A-18 AFC 39, replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g. On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, continue to step d.	-	-
d. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C159F, pin 38?	e	f
e. Replace 5K-C168 external tank precheck relay (A1-F18AC-420-300, WP030 00) and do step g.	-	-
f. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g.	-	-
g. If opened, disconnected, or removed during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-Y025		
(2) Connector 52P-C159F		
(3) Door 10L		
(4) Door 510	-	-

Table 5. Left External Tank Does Not Resume Refueling

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 5. Left External Tank Does Not Resume Refueling (Continued)

<div>NOTE</div> <div>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.</div> <div>Component locations are shown in WP011 00.</div> <div>Malfunction is caused by one of the items listed below:</div> <div>External Fuel Tank External Tank Precheck Switch FUEL CHECK PANEL 5K-C168 External Tank Precheck Relay</div>		
Procedure	No	Yes
<div>CAUTION</div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</div> <div>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</div> <div>52P-C159F</div> <div>NOTE</div> <div>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</div> <div><div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div></div>		
a. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Open left pylon door 502 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025 pin 9?	b	c
b. Replace external fuel tank (A1-F18AC-460-300, WP088 01).	-	-

Table 5. Left External Tank Does Not Resume Refueling (Continued)

Procedure	No	Yes
c. On 161353 THRU 161761 BEFORE F/A-18 AFC 39, replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g. On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, continue to step d.	-	-
d. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C159F pin 38?	e	f
e. Replace 5K-C168 external tank precheck relay (A1-F18AC-420-300, WP030 00) and do step g.	-	-
f. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g.	-	-
g. If opened, disconnected, or removed during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-Y025		
(2) Connector 52P-C159F		
(3) Door 10L		
(4) Door 502	-	-

Table 6. Right External Tank Does Not Resume Refueling

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 6. Right External Tank Does Not Resume Refueling (Continued)

<div>NOTE</div> <div>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.</div> <div>Component locations are shown in WP011 00.</div> <div>Malfunction is caused by one of the items listed below:</div> <div>External Fuel Tank FUEL CHECK PANEL 5K-C168 External Tank Precheck Relay</div>		
Procedure	No	Yes
<div>CAUTION</div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contact may use the RX1 scale.</div> <div>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</div> <div>52P-C159F</div> <div>NOTE</div> <div>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</div> <div><div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div></div>		
a. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Open right pylon door 502 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025 pin 9?	b	c
b. Replace external fuel tank (A1-F18AC-460-300, WP 088 01).	-	-

Table 6. Right External Tank Does Not Resume Refueling (Continued)

Procedure	No	Yes
c. On 161353 THRU 161761 BEFORE F/A-18 AFC 39, replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g. On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, continue to step d.	-	-
d. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C159F, pin 38?	e	f
e. Replace 5K-C168 external tank precheck relay (A1-F18AC-420-300, WP030 00) and do step g.	-	-
f. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g.	-	-
g. If opened, disconnected, or removed during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-Y025		
(2) Connector 52P-C159F		
(3) Door 10L		
(4) Door 502	-	-

Table 7. External Tank Does Not Manually Precheck

Support Equipment Required
None
Materials Required
None
Malfunction is caused by one of the items listed below:
External Fuel Tank
Fuel Line Components
Manual Precheck Valve

Table 7. External Tank Does Not Manually Precheck (Continued)

Procedure	No	Yes
a. Do substeps below: (1) Turn on electrical power (A1-F18AC-LMM-000). (2) On FUEL CHECK PANEL, set and hold <input type="checkbox"/> 1 EXT F TK CHK switch <input type="checkbox"/> 2 EXT TK PRCHK SW. Did external fuel tank stop refueling?	b	c
b. Do applicable substep below: (1) Table 1 (left external fuel tank). (2) Table 2 (right external fuel tank). (3) Table 3 (centerline external fuel tank).	-	-
c. Malfunction has been isolated to manual precheck valve or manual precheck valve outlet tube between external tank fuel level control pilot valve and manual precheck valve. Replace external fuel tank (A1-F18AC-460-300, WP 088 01).	-	-
LEGEND <input type="checkbox"/> 1 161353 THRU 161761 BEFORE F/A-18 AFC 39. <input type="checkbox"/> 2 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39.		

Table 8. Centerline External Tank Increasing When EXT TANKS Switch Set to STOP

Support Equipment Required					
NOTE Alternate item type designation or part numbers are listed in parentheses. <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>77/BN</td><td>Multimeter</td></tr></table>		Part Number or Type Designation	Nomenclature	77/BN	Multimeter
Part Number or Type Designation	Nomenclature				
77/BN	Multimeter				
Materials Required None					
NOTE Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure. Component locations are shown in WP011 00.					

Table 8. Centerline External Tank Increasing When EXT TANKS Switch Set to STOP (Continued)


Malfunction is caused by one of the items listed below:		
Aircraft Wiring External Fuel Tank FUEL System Control Panel		
Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C159G</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Open centerline pylon door 510 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft centerline pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12 and ground at pins 13 and 14?	b	f
b. Do substeps below:		
(1) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).		

Table 8. Centerline External Tank Increasing When EXT TANKS Switch Set to STOP (Continued)

Procedure	No	Yes
(2) With EXT TANKS CTR switch set to STOP, does continuity exist from 5J-H027 pin 23 to 5J-H027, pin 22?	c	d
c. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step i. . . .	-	-
d. Does continuity exist from 5P-H027, pin 22 to 5P-Y025, pin 12?	e	g
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i.	-	-
f. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step i.	-	-
g. Do substep below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) On no. 8 circuit breaker/relay panel assembly, disconnect 52P-C159G.		
(4) Does continuity exist from 5P-H027, pin 23 to 52P-C159G, pin 84?	e	h
h. Isolate between external tank refuel control relay and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP038 00) and do step i.	-	-
i. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-Y025 and 52P-C159G and splice area WTY001.		
(2) Doors 10L and 510		
(3) FUEL system control panel	-	-

Table 9. Left or Right External Tank Increasing When EXT TANKS Switch Set To STOP

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter

Table 9. Left or Right External Tank Increasing When EXT TANKS Switch Set To STOP (Continued)


<p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.</p> <p>Component locations are shown in WP011 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring External Fuel Tank FUEL System Control Panel</p>		
Procedure	No	Yes
<p align="center"></p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin test that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p align="center">52P-C159G</p> <p align="center">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Open pylon door 502 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		

Table 9. Left or Right External Tank Increasing When EXT TANKS Switch Set To STOP (Continued)

Procedure	No	Yes
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12 and ground at pins 13 and 14?	b	f
b. Do substeps below:		
(1) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(2) With EXT TANKS WING switch set to STOP does continuity exist from 5J-H027, pin 23 to 5J-H027, pin 33?	c	d
c. Replace Fuel system control panel (A1-F18AC-460-300, WP104 00) and do step i.	-	-
d. Does continuity exist from 5P-H027, pin 33 to 5P-Y025, pin 12?	e	g
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i.		
f. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step i.	-	-
g. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) On no. 8 circuit breaker/relay panel assembly, disconnect 52P-C159G.		
(4) Does continuity exist from 5P-H027, pin 23 to 52P-C159G, pin 84?	e	h
h. Isolate between external tank refuel control relay and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP038 00) and do step i.	-	-
i. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		s
(1) Connectors 5P-Y025 and 52P-C159G and splice area WTY001.		
(2) Doors 10L and 502		
(3) FUEL system control panel	-	-

Table 10. Centerline External Tank Does Not Resume Refueling

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.		
Component locations are shown in WP011 00.		
Malfunction is caused by one of the items listed below:		
External Fuel Tank FUEL System Control Panel		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">Pin to pin test per procedural step.Shorts to ground.Shorts between surrounding pins on connectors.Shorts between shield and conductors.Shield continuity. <p>a. Do substeps listed below:</p> <p>(1) Turn off fuel servicing equipment.</p>		

Table 10. Centerline External Tank Does Not Resume Refueling (Continued)

Procedure	No	Yes
(2) Open centerline pylon door 510 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft centerline pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12?	b	c
b. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step d.	-	-
c. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step d.	-	-
d. Connect connector 5P-Y025 and close door 510 (A1-F18AC-LMM-010).	-	-

Table 11. Left Or Right External Tank Does Not Resume Refueling

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	
Malfunction is caused by one of the items listed below:	
External Fuel Tank FUEL System Control Panel	

Table 11. Left Or Right External Tank Does Not Resume Refueling (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps listed below:		
(1) Turn off fuel servicing equipment.		
(2) Open left pylon door 502 (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12?	b	c
b. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step d.	-	-
c. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step d.	-	-
d. Connect connector 5P-Y025 and close pylon door 502 (A1-F18AC-LMM-010).	-	-

Table 12. Left Or Right External Tank Slow To Refuel Or Does Not Accept Fuel

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter

Table 12. Left Or Right External Tank Slow To Refuel Or Does Not Accept Fuel
(Continued)

<div>Materials Required</div> <div>None</div> <div>NOTE</div> <div>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.</div> <div>Component locations are shown in WP011 00.</div> <div>Malfunction is caused by one of the items listed below:</div> <div>External Fuel Tank External Fuel Tank (Cylindrical) Refuel/Transfer Check Valve FUEL CHECK PANEL Fuel System Control Panel Wing Fuel Coupling Valve Wing Pylon to External Fuel Tank Fuel/Air Coupling Valve 5K-C168 Ext Tank Precheck Relay</div>		
Procedure	No	Yes
<div>CAUTION</div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</div> <div>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/ jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</div> <div>52P-C159F</div> <div>NOTE</div> <div>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</div> <div><div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div></div> <div><div>a. On FUEL system control panel, is EXT TANKS, WING switch set to NORM?</div><div>b</div><div>c</div><div>b. Set EXT TANKS WING switch to NORM.</div><div>-</div><div>-</div></div>		

**Table 12. Left Or Right External Tank Slow To Refuel Or Does Not Accept Fuel
(Continued)**

Procedure	No	Yes
c. On external fuel tank, is the MANUAL PRECHECK VALVE in LOCK (flush with tank) position?	d	e
d. Set MANUAL PRECHECK VALVE to LOCK (flush with tank) position.	-	-
e. Set MANUAL PRECHECK VALVE to LOCK (flush with tank) position.	-	-
f. Do substeps below:		
(1) Open wing pylon door 502 (A1-F18AC-LMM-010).		
(2) Turn off fuel servicing equipment.		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12?	f	g
g. Does 28vdc exist at 5P-Y025, pin 9?	h	i
h. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step q.	-	-
i. Do substeps below:		
(1) On cylindrical aircraft fuel tank replace external fuel tank (cylindrical) refuel/transfer check valve (A1-F18AC-460-300, WP090 06). If tank still does not accept fuel, continue to substep (2).		
(2) Remove external tank (A1-F18AC-LWS-000).		
(3) Remove pylon (A1-F18AC-740-300, WP034 00).		
(4) Remove wing pylon to external fuel tank fuel/air coupling valve (A1-F18AC-460-300, WP100 00). Is valve damaged?	j	k
j. On 161353 THRU 161761 BEFORE F/A-18 AFC 39, replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step q. On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, continue to step l.	-	-
k. Remove wing fuel coupling valve (A1-F18AC-460-300, WP102 00). Is valve damaged?	m	n
l. Replace wing pylon to external fuel tank fuel/air coupling valve (A1-F18AC-460-300, WP100 00) and do step q.	-	-
m. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		

**Table 12. Left Or Right External Tank Slow To Refuel Or Does Not Accept Fuel
(Continued)**

Procedure	No	Yes
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C159F, pin 38?	o	p
n. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step q.	-	-
o. Replace wing fuel coupling valve (A1-F18AC-460-300, WP102 00) and do step q.	-	-
p. Replace 5K-C168 external tank precheck relay (A1-F18AC-420-300, WP030 00) and do step q.	-	-
q. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step q.	-	-
r. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connector 5P-Y025		
(2) Connector 52P-C159F		
(3) Pylon door 502		
(4) Door 10L		
(5) Wing fuel coupling valve		
(6) Wing pylon to external fuel tank fuel/air coupling valve	-	-

Table 13. Centerline External Tank Slow To Refuel Or Does Not Accept Fuel

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

**Table 13. Centerline External Tank Slow To Refuel Or Does Not Accept Fuel
(Continued)**

NOTE		
<p>Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.</p> <p>Component locations are shown in WP011 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Centerline Pylon to External Tank Fuel/Air Coupling Valve C EXT F TK CHK Switch External Fuel Tank External Fuel Tank (Cylindrical) Refuel/Transfer Check Valve Fuselage to Pylon Fuel Coupling Valve FUEL CHECK PANEL FUEL System Control Panel 5K-C168 Ext Tank Precheck Relay</p>		
Procedure	No	Yes
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C159F</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. On FUEL system control panel, is EXT TANKS WING switch set to NORM?	b	c
b. Set EXT TANKS WING switch to NORM.	-	-
c. On external fuel tank, is the MANUAL PRECHECK VALVE in normal LOCK position (flush with tank)?	d	e
d. Set MANUAL PRECHECK VALVE to LOCK position (flush with tank).	-	-

**Table 13. Centerline External Tank Slow To Refuel Or Does Not Accept Fuel
(Continued)**

Procedure	No	Yes
e. Do substeps below:		
(1) Open centerline pylon door 510 (A1-F18AC-LMM-010).		
(2) Turn off fuel servicing equipment.		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect aircraft centerline pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12?	f	g
f. Does 28vdc exist at 5P-Y025, pin 9?	h	i
g. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step p.	-	-
h. Do substeps below:		
(1) On cylindrical aircraft fuel tank, replace external fuel tank (cylindrical) refuel/transfer check valve (A1-F18AC-460-300, WP090 06). If tank still does not accept fuel, continue to substep (2).		
(2) Remove external tank (A1-F18AC-LWS-000).		
(3) Remove pylon (A1-F18AC-LWS-000).		
(4) Remove centerline pylon to external fuel tank fuel/air coupling valve (A1-F18AC-460-300, WP100 00). Is valve damaged?	j	k
i. On 161353 THRU 161761 BEFORE F/A-18 AFC 39, replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step p. On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect connector 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) On FUEL CHECK PANEL, make sure EXT TK PRCHK SW is in NORM position.		
(6) Does 28vdc exist at 52P-C159F, pin 38?	l	m

**Table 13. Centerline External Tank Slow To Refuel Or Does Not Accept Fuel
(Continued)**

Procedure	No	Yes
j. Remove fuselage to pylon fuel coupling valve (A1-F18AC-460-300, WP097 00). Is valve damaged?	n	o
k. Replace centerline pylon to external fuel tank fuel/air coupling valve (A1-F18AC-460-300, WP100 00) and do step p.	-	-
l. Replace 5K-C168 ext tank precheck relay (A1-F18AC-420-300, WP030 00) and do step p.	-	-
m. Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step p.	-	-
n. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step p.	-	-
o. Replace fuselage to pylon fuel coupling valve (A1-F18AC-460-300, WP097 00) and do step p.	-	-
p. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-Y025 and 52P-C159F		
(2) Door 510 and 10L		
(3) Fuselage to pylon fuel coupling valve		
(4) Centerline pylon to external fuel tank fuel/air coupling valve	-	-

**Table 14. External Tank Did Not Precheck When Refueling Using Electrical
Power - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39**

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 14. External Tank Did Not Precheck When Refueling Using Electrical Power - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39 (Continued)

NOTE		
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.		
Component locations are shown in WP011 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring External Fuel Tank FUEL CHECK PANEL No. 8 Circuit Breaker/Relay		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/ jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below.</p> <div>52P-C159F 52P-C159G</div> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <div>1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity.</div>		
a. Do substeps below:		
(1) Move master precheck handle to UP PRECHECK (door 8).		
(2) On FUEL CHECK PANEL, set and hold EXT TK PRCHK SW. Does external tank stop refueling?	b	c
b. On cockpit FUEL system control panel, set EXT TANKS CTR or WING switch to STOP. Does external fuel tank stop refueling?	d	e

Table 14. External Tank Did Not Precheck When Refueling Using Electrical Power - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39 (Continued)

Procedure	No	Yes
c. Release switch and continue refueling.	-	-
d. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step n.	-	-
e. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) On pylon, open door 510 (centerline) or door 502 (left or right) (A1-F18AC-LMM-010).		
(4) Disconnect aircraft centerline or wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) On FUEL CHECK PANEL, set and hold EXT TK PRCHK SW. Does 28vdc exist at 5P-Y025, pin 9 and ground at pin 10 and 11?	f	d
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159F.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) On FUEL CHECK PANEL, set and hold EXT TK PRCHK SW.		
(6) Does 28vdc exist at 52P-C159F pin 38?	g	h
g. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159G.		
(3) Does 28vdc exist at 52J-C159G, pin 60?	i	j

Table 14. External Tank Did Not Precheck When Refueling Using Electrical Power - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39 (Continued)

Procedure	No	Yes
h. Does continuity exist from: 52P-C159F pin 7 to 5P-Y025 pin 9 (right tank) 52P-C159F pin 8 to 5P-Y025 pin 9 (centerline tank) 52P-C159F pin 15 to 5P-Y025 pin 9 (left tank)?	k	l
i. Isolate between no. 8 circuit breaker/relay panel assembly wiring and EXT FUEL TK CONT circuit breaker and do step n.	-	-
j. Do substeps below: (1) Turn off electrical power (A1-F18AC-LMM-000). (2) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00). (3) Does continuity exist from: 52P-C159F pin 38 to 5P-B019 pin 11 52P-C159F pin 60 to 5P-B019 pin 13?	k	m
k. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step n.	-	-
l. Isolate between 5K-C168 external tank precheck relay and no. 8 circuit breaker/relay panel assembly wiring and do step n.	-	-
m. Isolate between 5S-B020 external tank precheck switch and FUEL CHECK PANEL wiring and do step n.	-	-
n. If opened, disconnected, or removed during this procedure, make sure the items listed below are connected, installed, or closed: (1) 5P-Y025 (2) 5P-C159F (3) 5P-C159G (4) Doors 510 and 502 (5) FUEL CHECK PANEL (6) Door 10L	-	-

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING - TRANSFER
EXTERNAL FUEL SYSTEM**

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
External Tank Does Not Resume Transfer, Table 5	9
External Tank Does Not Stop Transfer, Table 4	7
External Tank Not Transferring, Table 3	5
Test Set Did Not Indicate Less Than 3 PSI, Table 1	1
Test Set Did Not Indicate 0 PSI With Arresting Hook Control Handle Down, Table 7	12
Test Set Did Not Indicate 0 PSI When Probe Extended, Table 6	11
Test Set Did Not Indicate 15 To 18 PSI, Table 2	4
Wrong Test Set Indications, Table 8	14

Record of Applicable Technical Directives

None

Table 1. Test Set Did Not Indicate Less Than 3 PSI

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	

Table 1. Test Set Did Not Indicate Less Than 3 PSI (Continued)


Malfunction is caused by one of the items listed below:		
Aircraft Wiring External Tanks Air Pressure Regulator FUEL System Control Panel No. 3 Relay Panel Assembly No. 8 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Make sure FUEL TK PRESS circuit breaker on no. 8 circuit breaker/relay panel assembly (door 10L) is closed, then do step b.	-	-
b. Do substeps listed below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 42 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-P102 from external tanks air pressure regulator.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-P102, pin 1 and a ground at 5P-P102, pin 2?	c	d
c. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL system control panel (A1-F18AC-460-310, WP104 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-H027, pin 20?	e	f

Table 1. Test Set Did Not Indicate Less Than 3 PSI (Continued)

Procedure	No	Yes
d. Replace external tanks air pressure regulator (A1-F18AC-460-310, WP093 00).	-	-
e. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C159G, pin 47 to 5P-H027, pin 20?	g	h
f. Does continuity exist from 5J-H027, pin 20 to 5J-H027, pin 24?	i	j
g. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step l.	-	-
h. Isolate between 5CBC101 FUEL TK PRESS circuit breaker and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step l.	-	-
i. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step l. . . .	-	-
j. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 13L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-E059 from no. 3 relay panel.		
(4) Does continuity exist from:		
52P-E059, pin 39 to 5P-P102, pin 1		
52P-E059, pin 63 to 5P-H027, pin 24?	g	k
k. Isolate between 12K-E020 LMG WOW relay no. 4 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step l.	-	-
l. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 5P-P102		
(2) 52P-C159G		
(3) 52P-E059		
(4) Door 10L		
(5) Door 13L		
(6) Door 42		
(7) FUEL system control panel (A1-F18AC-460-300, WP104 00)	-	-

Table 2. Test Set Did Not Indicate 15 To 18 PSI

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation

260-6XLP (AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.

Component locations are shown in WP011 00.

Malfunction is caused by one of the items listed below:

External Tanks Air Pressure Regulator

External Tanks Pressure Regulator Check Valve

No. 3 Relay Panel Assembly

Procedure	No	Yes
a. Do substeps listed below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 42 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-P102 from external tanks air pressure regulator.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-P102, pin 1?	b	c
b. Remove and inspect external tanks pressure regulator check valve (A1-F18AC-460-300, WP094 00). If check valve is good, replace external tanks pressure regulator (A1-F18AC-460-300, WP093 00) and do step d.	-	-
c. Isolate between 12K-E020 LMG WOW relay no. 4 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step d.	-	-

Table 2. Test Set Did Not Indicate 15 To 18 PSI (Continued)

Procedure	No	Yes
d. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-P102		
(2) External tank pressure regulator check valve		
(3) Door 42	-	-

Table 3. External Tank Not Transferring

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Piping	
Aircraft Wiring	
External Fuel Tank	
External Fuel Tank (Cylindrical) Refuel/Transfer Check Valve	
FUEL System Control Panel	
Refuel/Transfer Shutoff Valve and Fuel Level Control Pilot Valve	

Table 3. External Tank Not Transferring (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Is air venting from external tank normal relief vent?	b	c
b. Do substeps listed below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove external tank door 506 and pylon door (A1-F18AC-LMM-010), and inspect piping from pressurization and vent valve to the fuel/air coupling valve. Is piping good?	d	e
c. Do substeps listed below:		
(1) On cockpit FUEL system control panel, make sure EXT TANKS WING and CTR switches are set to NORM.		
(2) Shut down APU or engine (A1-F18AC-LMM-000).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Open pylon door 510 (centerline) or door 502 (wing).		
(5) Disconnect aircraft centerline or wing pylon connector 5P-Y025 from external fuel tank.		
(6) Turn on electrical power (A1-F18AC-LMM-000).		
(7) Does 28vdc exist at 5P-Y025, pin 12?	f	g
d. Replace piping components as required (A1-F18AC-460-300, WP089 00) and do step j.	-	-

Table 3. External Tank Not Transferring (Continued)

Procedure	No	Yes
e. Inspect pylon piping. Is piping good?	h	i
f. On cylindrical aircraft fuel tank, replace external fuel tank (cylindrical) refuel/transfer check valve (A1-F18AC-460-300, WP090 06) and do step j. If external tank still does not transfer, continue this step. Replace external fuel tank (A1-F18AC-LWS-000) and do step j.	-	-
g. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step j.	-	-
h. Replace piping components as required (A1-F18AC-PIM-000) and do step j.	-	-
i. Replace external fuel tank (A1-F18AC-460-300, WP 088 01) and do step j.	-	-
j. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connector 5P-Y025		
(2) External tank and pylon doors	-	-

Table 4. External Tank Does Not Stop Transfer

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
External Fuel Tank	
FUEL System Control Panel	
No. 8 Circuit Breaker/Relay Panel Assembly	

Table 4. External Tank Does Not Stop Transfer (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Make sure EXT FUEL TK CONT circuit breaker on no. 8 circuit breaker/relay panel assembly (door 10L) is closed, then do substeps listed below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Open pylon door 510 (centerline) or door 502 (wing) (A1-F18AC-LMM-010).		
(4) Disconnect aircraft centerline or wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12?	b	c
b. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-H027, pin 23?	d	e
c. Does ground exist at 5P-Y025, pins 13 and 14?	f	i
d. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		

Table 4. External Tank Does Not Stop Transfer (Continued)

Procedure	No	Yes
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) On no. 8 circuit breaker/relay panel assembly, disconnect 52P-C159G.		
(4) Does continuity exist from 5P-H027, pin 23 to 52P-C159G, pin 84?	f	g
e. Does continuity exist from:		
5P-Y025, pin 12 to 5P-H027, pin 22 (centerline)		
5P-Y025, pin 12 to 5P-H027, pin 33 (wing)?	f	h
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j.	-	-
g. Isolate between external tank refuel control relay and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP031 00) and do step j.	-	-
h. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step j.	-	-
i. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step j.	-	-
j. If disconnected, removed or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-Y025 and 52P-C159G		
(2) Pylon door		
(3) FUEL system control panel		
(4) Door 10L	-	-

Table 5. External Tank Does Not Resume Transfer

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 5. External Tank Does Not Resume Transfer (Continued)

NOTE		
<p>External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.</p> <p>Component locations are shown in WP011 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>External Fuel Tank FUEL System Control Panel</p>		
Procedure	No	Yes
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps listed below.		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Open centerline pylon door 510 or wing pylon door 502 (A1-F18AC-LMM-010).		
(4) Disconnect aircraft centerline or wing pylon connector 5P-Y025 from external fuel tank.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-Y025, pin 12?	b	c
b. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step d.	-	-
c. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step d.	-	-
d. Connect 5P-Y025 and close pylon door (A1-F18AC-LMM-010).	-	-

Table 6. Test Set Did Not Indicate 0 PSI When Probe Extended


Support Equipment Required				
NOTE				
Alternate item type designation or part numbers are listed in parentheses.				
Part Number or Type Designation	Nomenclature			
77/BN	Multimeter			
Materials Required				
None				
NOTE				
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.				
Component locations are shown in WP011 00.				
Malfunction is caused by one of the items listed below:				
External Fuel Tank FUEL System Control Panel				
Procedure	No	Yes		
<div style="text-align: center;"></div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <p>a. Do substeps listed below:</p> <ol style="list-style-type: none">(1) Shut down APU or engine (A1-F18AC-LMM-000).(2) Turn off electrical power (A1-F18AC-LMM-000).(3) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).				

Table 6. Test Set Did Not Indicate 0 PSI When Probe Extended (Continued)

Procedure	No	Yes
(4) With the EXT TANKS CTR and WING set to NORM and the PROBE control switch set to EXTEND, does continuity exist from 5J-H027, pin 20 to 5J-H027, pin 32?	b	c
b. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step d.	-	-
c. Replace external fuel tank (A1-F18AC-460-300, WP088 01) and do step d.	-	-
d. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) FUEL system control panel	-	-

Table 7. Test Set Did Not Indicate 0 PSI With Arresting Hook Control Handle Down

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring Arresting Hook Control Unit	

Table 7. Test Set Did Not Indicate 0 PSI With Arresting Hook Control Handle Down (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps listed below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 19P-J003 from arresting hook control unit (A1-F18AC-130-300, WP088 00).		
(4) With the arresting hook control handle in the down position, does continuity exist from 19P-J003, pin 12 to 19P-J003, pin 13?	b	c
b. Replace arresting hook control handle (A1-F18AC-130-300, WP088 00) and do step d.	-	-
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step d.	-	-
d. If disconnected or removed during this procedure, make sure the items below are connected and installed:		
(1) Connector 19P-J003	-	-

Table 8. Wrong Test Set Indications

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
—	External Air Source (20 to 40 psi)	
Materials Required		
Specification or Part Number	Nomenclature	
TT-I-735, Grade A (FSCM 81348)	Isopropyl Alcohol	
CCCC440TY1CL1 (FSCM 81348)	Cheesecloth	
Malfunction is caused by one of the items listed below:		
Test Set Test Set Receptacle Contamination		
Procedure	No	Yes
NOTE		
Fuel system test set receptacles J1 and J2 are subject to foreign particles which could cause shorting of pins.		
a. Clean receptacles J1 and J2 per substeps below:		
<div>WARNING</div>		
Isopropyl alcohol is highly flammable and toxic. Do not use near open flame or sparks. Use only in well ventilated areas.		
(1) Clean receptacles with cheesecloth moistened with isopropyl alcohol.		
<div>WARNING</div>		
To prevent injury to personnel, do not direct compressed air against skin.		
(2) Blow loose foreign particles from receptacles using dry, filtered, low pressure (20 to 40 psi) air.		
(3) If test set malfunction still exists, replace test set.	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TESTING - PRESSURE SWITCHES
EXTERNAL FUEL SYSTEM

Reference Material

Plane Captain Manual A1-F18AC-PCM-000
Line Maintenance Procedures A1-F18AC-LMM-000
Line Maintenance Access Doors A1-F18AC-LMM-010

Alphabetical Index

Subject	Page No.
Code 951 Displayed With 32 PSI Pressure Applied, Table 5	11
Code 951 Not Displayed With 34 PSI Pressure Applied, Table 4	10
EXT TANK And Code 951 Displayed When Pressure Less Than 4 PSIG, Table 2	6
EXT TANK Not Displayed With 5 PSIG Pressure Applied, Table 3	8
External Fuel System Pressure Switches Test, Table 1	1
Fuel System Test Set Controls and Displays, Figure 3	16
Fuel System Test Set Hookup, Figure 1	14
Test Connector Hookup, Figure 2	15
Wrong Test Set Indications, Table 6	13

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP-MDA-F/A-18-00054C1)	1 Oct 86	—

Table 1. External Fuel System Pressure Switches Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Multipurpose Display Group		

Table 1. External Fuel System Pressure Switches Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication								
<div>Support Equipment Required</div> <div>NOTE</div> <div>Alternate item type designations or part numbers are listed in parentheses.</div> <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>74D460108-1003 (74D460108-1001)</td><td>Fuel System Test Set</td></tr><tr><td>—</td><td>External Electrical Power Source</td></tr><tr><td>—</td><td>External Air Source (Moisture Free)</td></tr></table> <div>Materials Required</div> <div>None</div> <div>NOTE</div> <div>Test must be performed with a maximum of one external tank installed. If more than one external tank is installed, remove extra tanks.</div> <div>External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this test.</div> <div>Component locations are shown in WP011 00.</div>			Part Number or Type Designation	Nomenclature	74D460108-1003 (74D460108-1001)	Fuel System Test Set	—	External Electrical Power Source	—	External Air Source (Moisture Free)
Part Number or Type Designation	Nomenclature									
74D460108-1003 (74D460108-1001)	Fuel System Test Set									
—	External Electrical Power Source									
—	External Air Source (Moisture Free)									
<div>1. PREPARATION.</div> <div>a. Hook up external air source per substeps below:</div> <div>(1) Remove cap (figure 2).</div> <div>(2) Hook up external air hose.</div> <div>b. Apply external electrical power (A1-F18AC-LMM-000).</div> <div>c. On FUEL system control panel, set EXT TANKS, WING and CTR switches to STOP.</div>										

Table 1. External Fuel System Pressure Switches Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication		
<div>WARNING</div> <p>To prevent death or injury to personnel and damage to aircraft, all warnings and cautions relating to external electrical power application and removal (application - weight off wheels, removal - weight off wheels), shall be observed while using proximity switch control box. Failure to comply may cause aircraft systems to be energized to an inflight condition.</p> <p>NOTE</p> <p>The amount of internal fuel is not important for this test.</p> <div><div><div>d. Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).</div><div>e. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</div><div>f. Hookup fuel test set cable 74D462025-1003 (figure 1) per sub-steps below:<div><div>(1) On fuel system test set remove J1 protective cap.</div><div>(2) Connect cable P1 to J1 on test set.</div><div>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</div><div>(4) Position test set near right wing tip.</div><div>(5) Set switches on fuel system test set (figure 3) as listed below:<div><div>S1 - OFF</div><div>S2 - OFF</div><div>S5 - CLOSED</div><div>S6 - OPEN</div><div>S7 - FUS S8 - XFR</div><div>S9 - OFF</div><div>S10- OFF</div><div>S11 - SEA LEVEL</div><div>CB1- OPEN</div><div>D3 FUEL INDICATOR - Selector knob to FEED</div></div></div></div></div></div></div>				

Table 1. External Fuel System Pressure Switches Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>g. On 74D460108-1003 test set, set switches as listed below:</p> <p>S12 - OFF S13 - OFF S14 - OFF S15 - OFF</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000). Set GND PWR switch 1 to A ON.</p> <p>i. On test set, close CB1 ACFT PWR circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>2. TRANSDUCER CHANNEL BIT. (QA)</p> <p>a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.</p> <p>b. Set switch S9 to SCALE and hold.</p> <p>c. Release switch S9.</p> <p>3. TRANSDUCER NULL. (QA)</p>	<p>D1 and D2 displays all minus signs.</p> <p>D2 displays 0000 \pm 00.1.</p> <p>D2 displays 25 to 35 PSI.</p>	<p>Do table 6.</p> <p>Do table 6.</p> <p>Do table 6.</p>
<p style="text-align: center;">NOTE</p> <p>Only the EXT AIR pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs, all minus signs will display. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
<p>a. Set switch S2 to OFF.</p> <p>b. Set switch S1 to EXT AIR. Record D1 display (non-nulled).</p>		

Table 1. External Fuel System Pressure Switches Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
c. Set switch S9 to NULL and release.	D1 displays 00.0.	Do table 6, WP036 00.
4. TEST. (QA)		
<p style="text-align: center;">NOTE</p> <p>With Digital Data Computer No. 1/No. 2 Software Program CONFIG/IDENT Number 85A AND UP (A1-F18AC-SCM-000), the number of CAUTIONS on the Digital Display Indicator IP-1317() has been limited to 21. When this procedure requires the presence of a CAUTION or requires that the CAUTION does not exist and 21 CAUTIONS are already displayed, hydraulic power must be applied (A1-F18AC-LMM-000) to provide space for the required CAUTION indication.</p>		
a. Monitor D1 display on fuel system test set. Turn on external air source and regulate air pressure to 3 PSI.	<p>1. On Digital Display Indicator ID-2150/ASM-612 (nose wheel-well, left side), code 951 not displayed.</p> <p>2. MASTER CAUTION light not displayed on LH advisory and threat warning indicator panel.</p> <p>3. EXT TK not displayed on cockpit Digital Display Indicator IP-1317().</p>	<p>Do table 2.</p> <p>Refer to A1-F18AC-440-200, WP006 00.</p> <p>Do table 2.</p>
b. Increase air pressure to 5 PSI.	MASTER CAUTION and EXT TANK displayed.	Do table 3.
c. Increase air pressure to 32 PSI.	Code 951 not displayed.	Do table 5.
<div style="text-align: center; border: 2px solid black; padding: 5px; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent injury to personnel, remain clear of RELIEF VENT. The external fuel tank pressure relief valve may open when pressure exceeds 33 psig. A loud noise and increased flow of air from the RELIEF VENT signals opening of pressure relief valve.</p>		
d. Increase air pressure to 34 PSI.	Code 951 displayed.	Do table 4.
e. Do substeps below:		
(1) Turn off external air source.		


Table 1. External Fuel System Pressure Switches Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Disconnect external air hose and allow air pressure to deplete.</p> <p>(3) Reset Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).</p> <p>5. FINAL.</p> <p>a. Remove external electrical power (A1-F18AC-LMM-000).</p> <p>b. Disconnect fuel system test set.</p> <p>c. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM-010).</p> <p>d. Install cap on ground test connector.</p> <p>e. On FUEL system control panel, set EXT TANKS, WING and CTR switches to NORM.</p>	<p>Code 951, MASTER CAUTION and EXT TK not displayed.</p>	

Table 2. EXT TANK And Code 951 Displayed When Pressure Less Than 4 PSIG

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
Materials Required	
None	
NOTE	
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	

**Table 2. EXT TANK And Code 951 Displayed When Pressure Less Than 4 PSIG
(Continued)**

Malfunction is caused by one of the items listed below:		
Aircraft Wiring 5 PSI External Fuel System Air Pressure Switch 34 PSI External Fuel System Air Pressure Switch		
Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002C pin 69?	b	c
b. Disconnect 5P-P151 from 5 PSI external fuel system air pressure switch in left MLG wheelwell. Does continuity exist from:		
5P-P151 pin C to 85P-N002C pin 69		
5P-P151 pin A to ground?	d	e
c. Does a ground exist at 85P-N002C pin 70?	f	g
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i.	-	-
e. Turn off external air source and replace 5 PSI external fuel system air pressure switch (A1-F18AC-460-300, WP101 00), then do step i.	-	-
f. Do substeps below:		
(1) Disconnect 5P-P152 from 34 PSI external fuel system air pressure switch in left MLG wheelwell.		

**Table 2. EXT TANK And Code 951 Displayed When Pressure Less Than 4 PSIG
(Continued)**

Procedure	No	Yes
(2) Does continuity exist from: 5P-P152 pin C to 85P-N002C pin 70 5P-P152 pin A to ground?	d	h
g. Do a Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step i.	-	-
h. Turn off external air source and replace 34 PSI external fuel system air pressure switch (A1-F18AC-460-300, WP101 00), then do step i.	-	-
i. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed: (1) 5P-P151 (2) 5P-P152 (3) 85P-N002C (4) Door 32R	-	-

Table 3. EXT TANK Not Displayed With 5 PSIG Pressure Applied

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
Materials Required	
None	
NOTE	
External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring 5 PSI External Fuel System Air Pressure Switch	

Table 3. EXT TANK Not Displayed With 5 PSIG Pressure Applied (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002C pin 69?	b	c
b. Do a Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step f.	-	-
c. Disconnect 5P-P151 from external tanks 5 PSI air pressure switch in left MLG wheelwell. Does continuity exist from 5J-P151 pin A to 5J-P151 pin C.	d	e
d. Isolate defective aircraft wiring (A1-F18AC-WDM-000) between 5P-P151, 52P-P110 and 85P-N002C, then do step f.	-	-
e. Turn off external air source and replace 5 PSI external fuel system air pressure switch (A1-F18AC-460-310, WP101 00), then do step f.	-	-
f. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed:		
(1) 5P-P151		
(2) 85P-N002C		
(3) Door 32R	-	-

Table 4. Code 951 Not Displayed With 34 PSI Pressure Applied


<p>Support Equipment Required</p> <p>NOTE</p> <p>Alternate item type designation or part numbers are listed in parentheses.</p> <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>77/BN</td><td>Multimeter</td></tr></table> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Fuel Pressurization and Vent System Schematics (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.</p> <p>Component locations are shown in WP011 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring 34 PSI External Fuel System Air Pressure Switch</p>			Part Number or Type Designation	Nomenclature	77/BN	Multimeter
Part Number or Type Designation	Nomenclature					
77/BN	Multimeter					
Procedure	No	Yes				
<div></div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <p>a. Do substeps below:</p> <div><div>(1) Turn off electrical power (A1-F18AC-LMM-000).</div><div>(2) Open door 32R (A1-F18AC-LMM-010).</div><div>(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.</div></div>						

Table 4. Code 951 Not Displayed With 34 PSI Pressure Applied (Continued)

Procedure	No	Yes
(4) Does a ground exist at 85P-N002C pin 70?	b	c
b. Do a Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step f.	-	-
c. Disconnect 5P-P152 from external tanks 34 PSI air pressure switch in left MLG wheelwell. Does continuity exist from 5J-P152 pin A to 5J-P152 pin C?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) between 5P-P152, 52P-P110 and 85P-N002C, then do step f.	-	-
e. Turn off external air source and replace external tanks 34 PSI air pressure switch (A1-F18AC-460-300, WP101 00), then do step f.	-	-
f. If disconnected, removed, or opened during this operation, make sure items listed below are connected, installed, or closed:		
(1) 5P-P152		
(2) 85P-N002C		
(3) Door 32R	-	-

Table 5. Code 951 Displayed With 32 PSI Pressure Applied

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
Materials Required	
None	
NOTE	
Fuel Pressurization and Vent System Schematics (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.	
Component locations are shown in WP011 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
34 PSI External Fuel System Air Pressure Switch	

Table 5. Code 951 Displayed With 32 PSI Pressure Applied (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002C pin 70?	b	c
b. Disconnect 5P-P152 from external tanks 34 PSI air pressure switch in left MLG wheelwell. Does continuity exist between:		
5P-P152 pin C to 85P-N002C pin 70		
5P-P152 pin A to ground?	d	e
c. Do a Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step f.	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f.	-	-
e. Turn off external air source and replace external tanks 34 PSI air pressure switch (A1-F18AC-460-300, WP101 00), then do step f.	-	-
f. If disconnected, removed, or opened during this procedure, make sure items listed below are connected, installed, or closed:		
(1) 5P-P152		
(2) 85P-N002C		
(3) Door 32R	-	-

Table 6. Wrong Test Set Indications

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
—	External Air Source (20 to 40 psi)	
Materials Required		
Specification or Part Number	Nomenclature	
TT-I-735, Grade A (CAGE 81348)	Isopropyl Alcohol	
CCC440TY1CL1 (CAGE 81348)	Cheesecloth	
Malfunction is caused by one of the items listed below:		
Test Set Test Set Receptacle Contamination		
Procedure	No	Yes
NOTE		
Fuel system test set receptacle J1 and J2 are subject to foreign particles which could cause shorting of pins.		
a. Clean receptacles J1 and J2 per substeps below:		
<div>WARNING</div>		
Isopropyl alcohol is highly flammable and toxic. Do not use near open flame or sparks. Use only in well ventilated areas.		
(1) Clean receptacles with cheesecloth moistened with isopropyl alcohol.		
<div>WARNING</div>		
To prevent injury to personnel, do not direct compressed air against skin.		
(2) Blow loose foreign particles from receptacles using dry, filtered, low pressure (20 to 40 psi) air.		
(3) If test set malfunction still exists, replace test set.	-	-

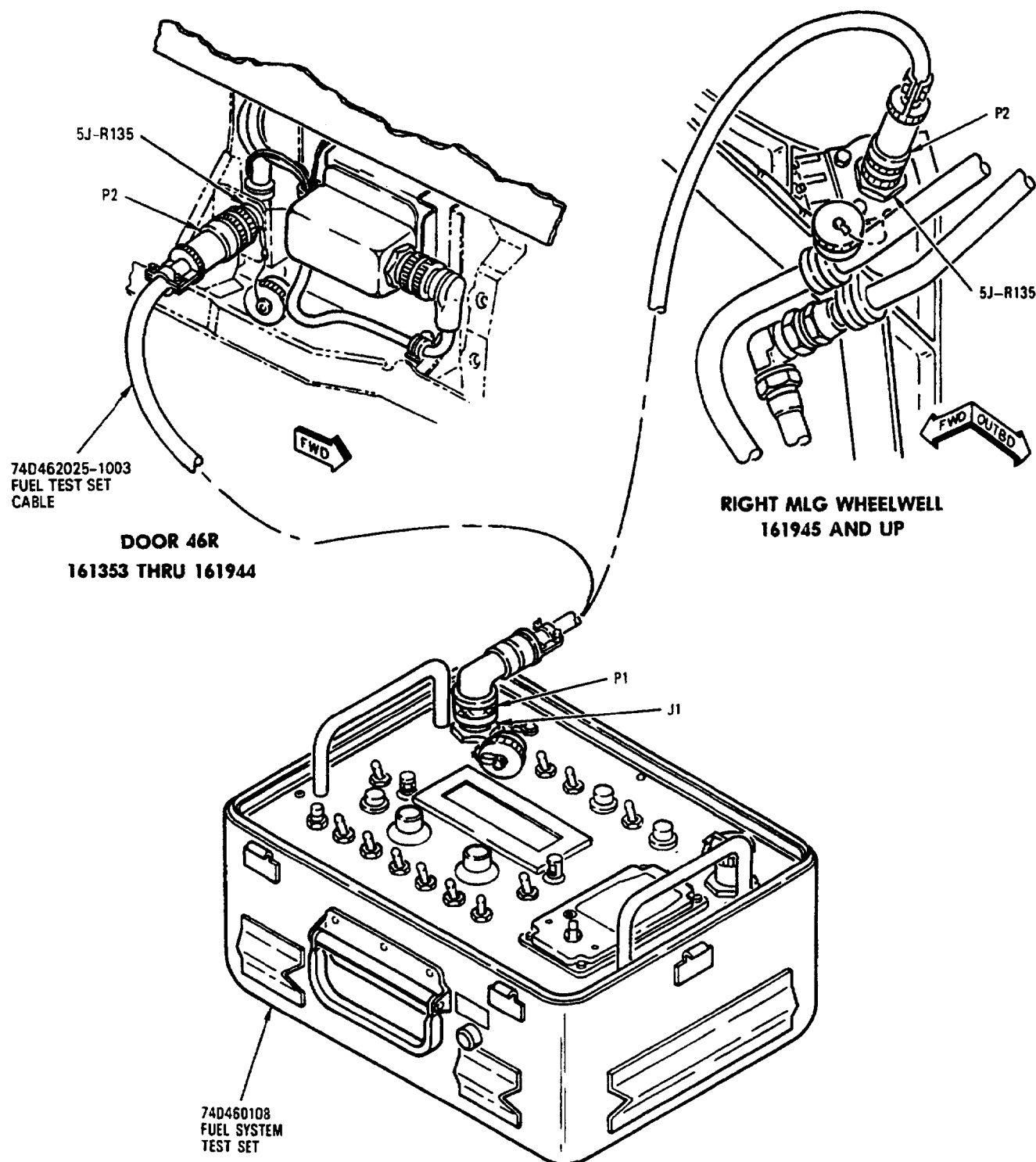
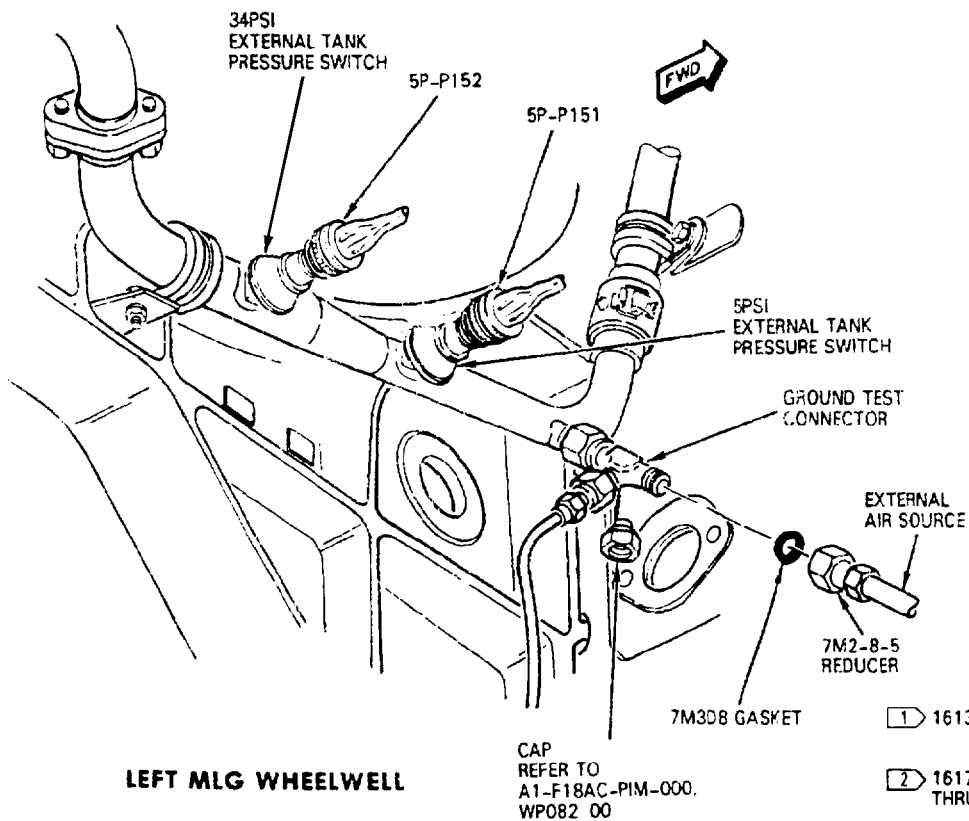
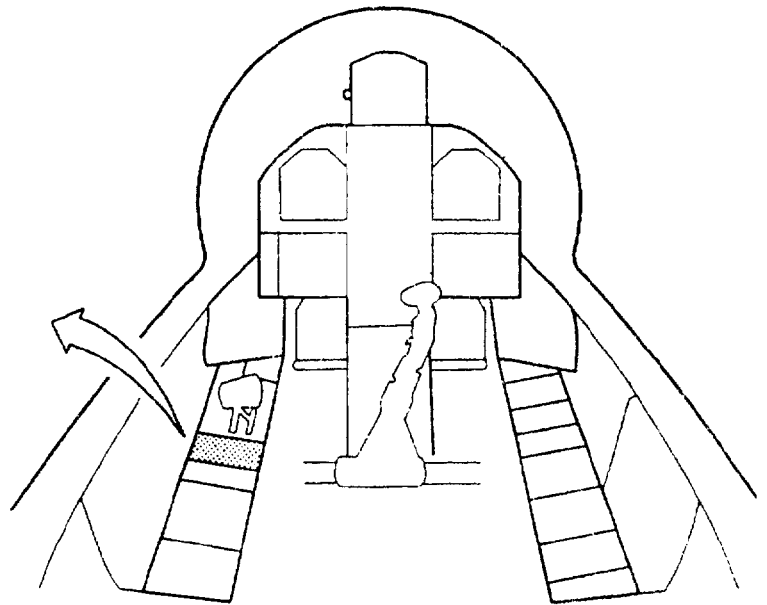
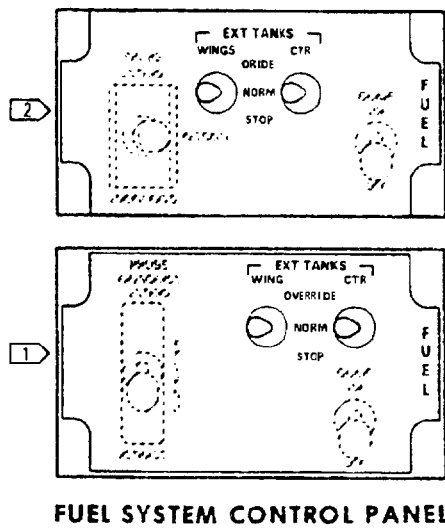


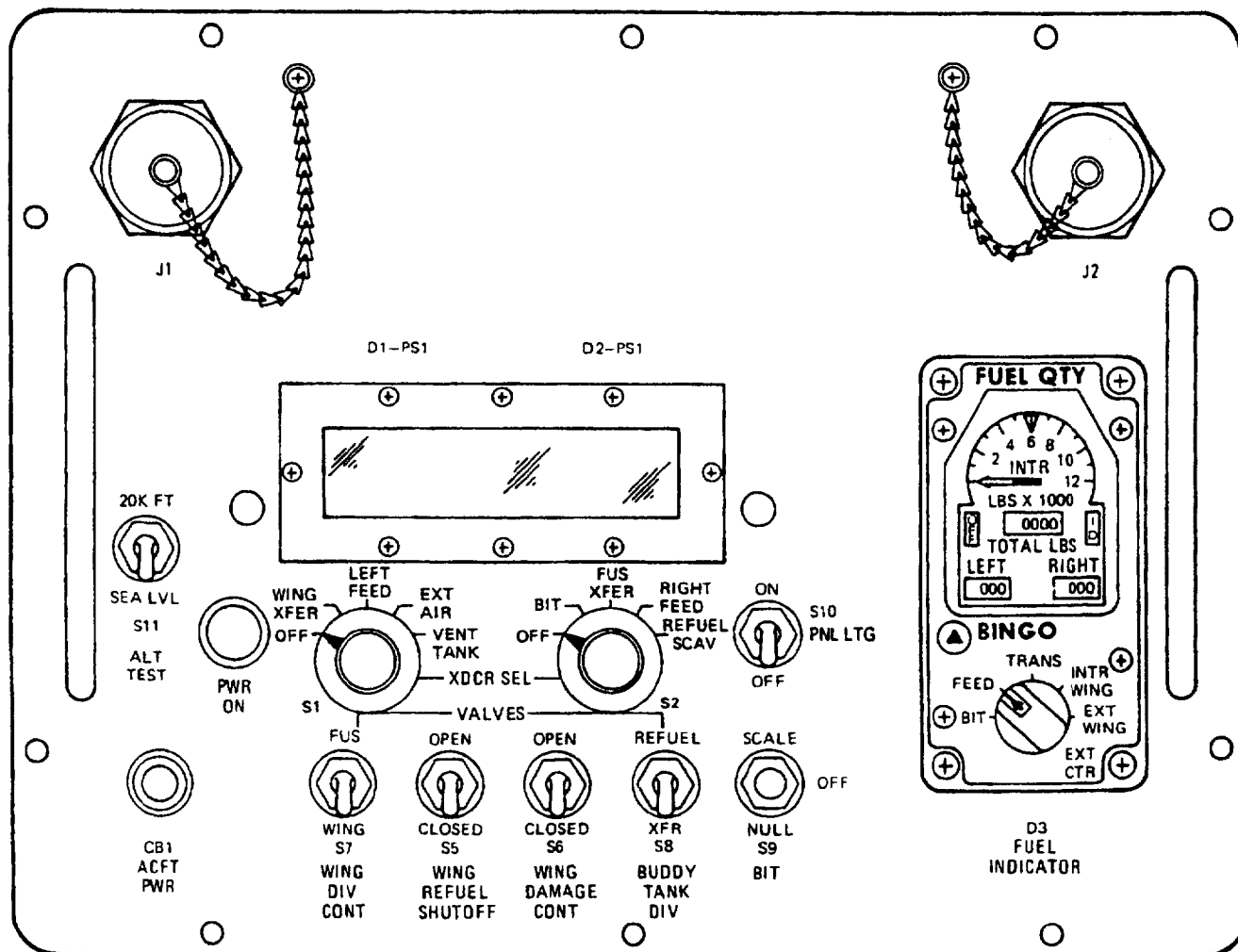
Figure 1. Fuel System Test Set Hookup



LEGEND

- 1 161353 THRU 161528 BEFORE F/A-18 AFC 41
- 2 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 41

Figure 2. Test Connector Hookup

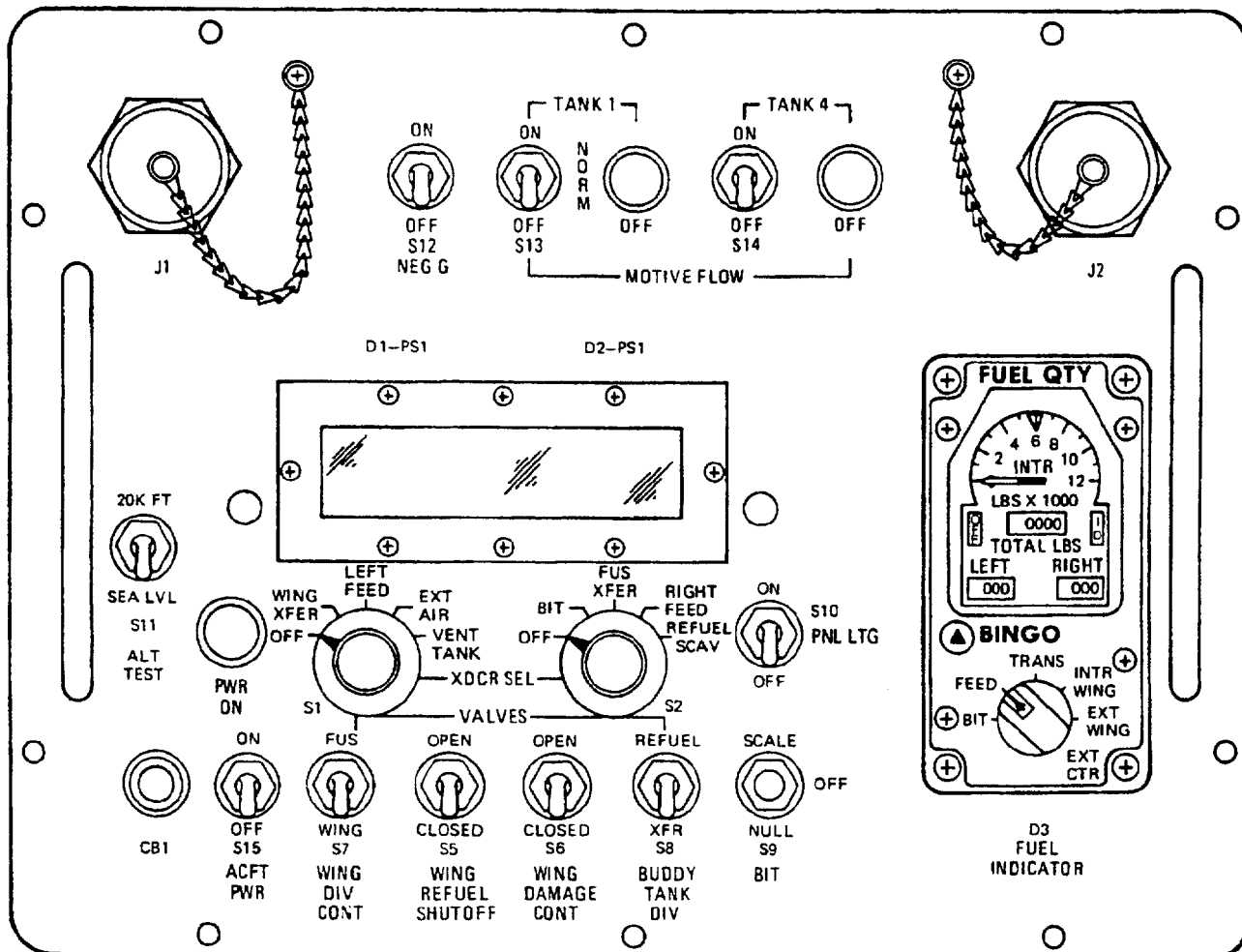


FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 3. Fuel System Test Set Controls and Displays (Sheet 1 of 2)

01000301



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 3. Fuel System Test Set Controls and Displays (Sheet 2)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
EXTERNAL FUEL SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
External Fuel System Component Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—

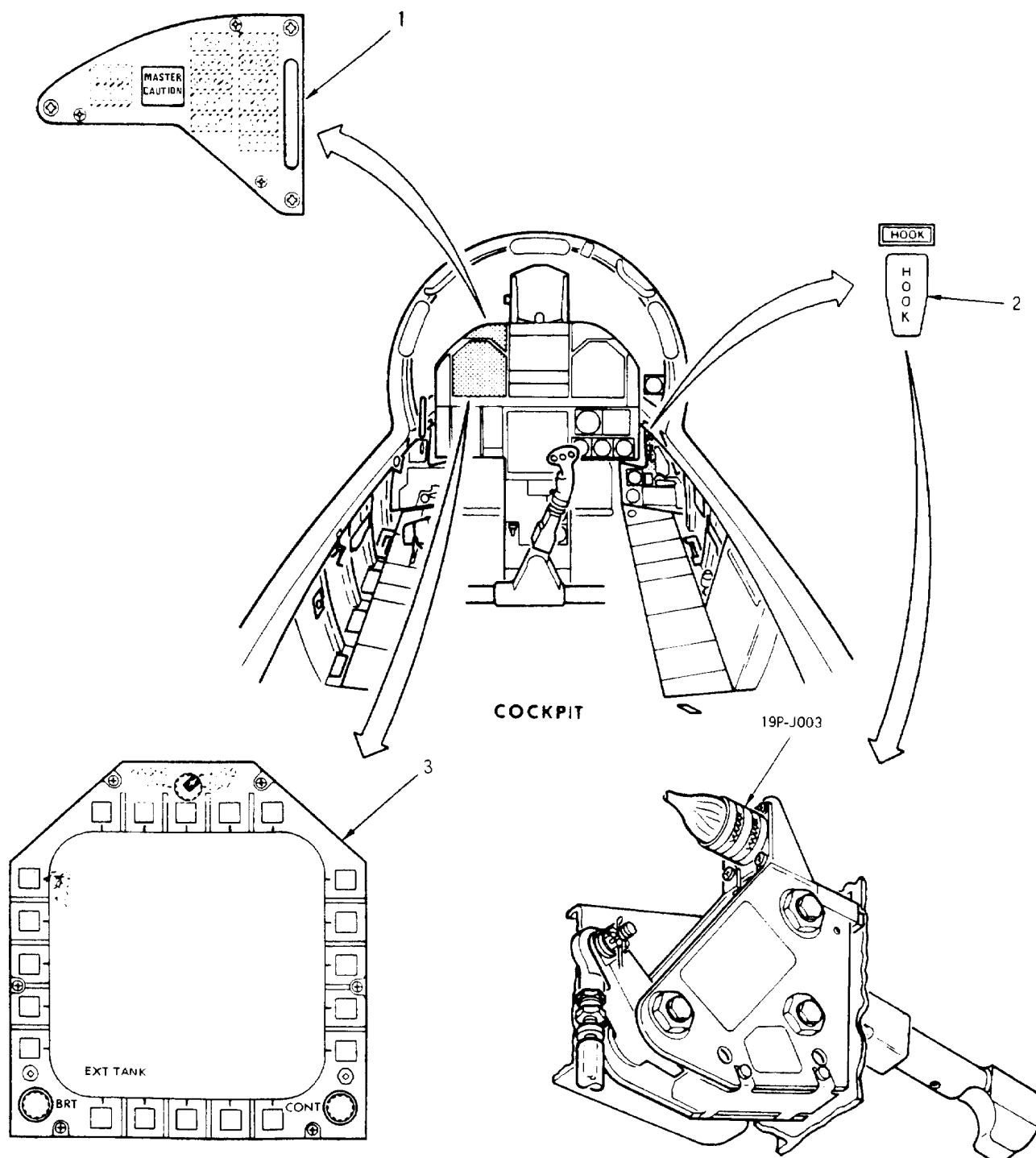


Figure 1. External Fuel System Component Locator (Sheet 1 of 13)

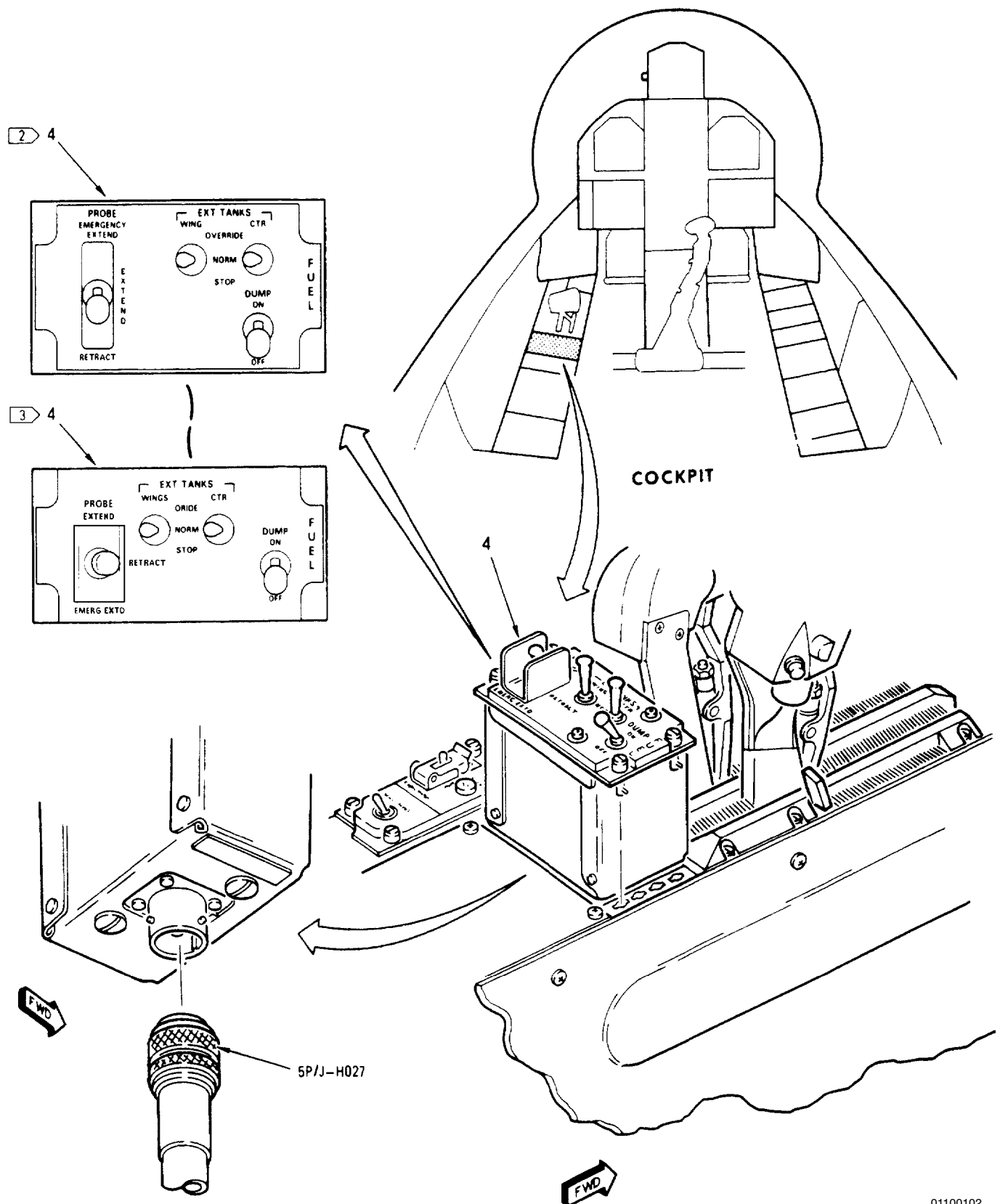
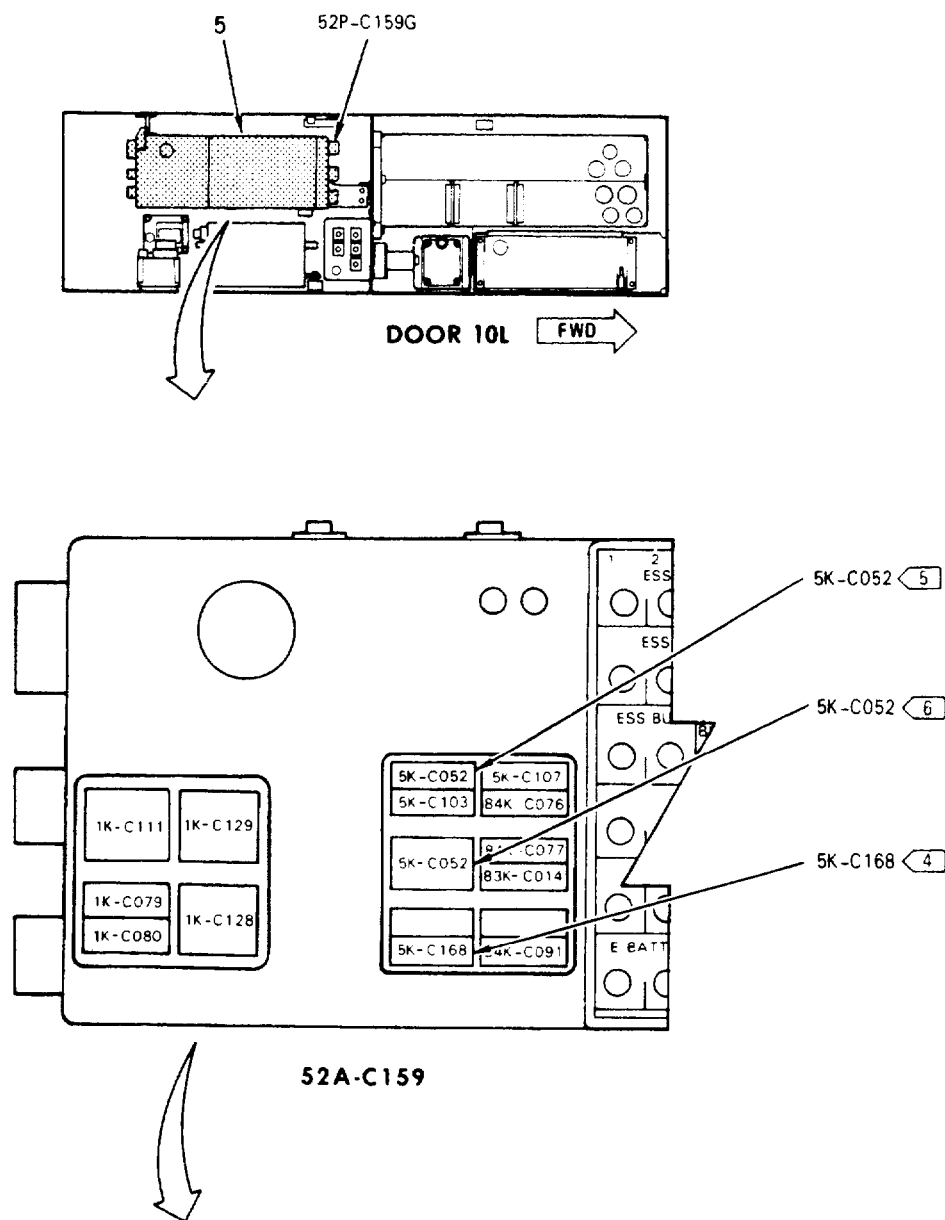


Figure 1. External Fuel System Component Locator (Sheet 2)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A6 A8	5CBC101 5CBC016 5K-C052 5K-C107 4 5K-C168	FUEL TK PRESS EXT FUEL TK CONT FUEL LOW LEVEL RELAY NO. 2 EXTERNAL TANK REFUEL CONTROL RELAY EXTERNAL TANK PRECHECK RELAY	L28VDC L28VDC

Figure 1. External Fuel System Component Locator (Sheet 3)

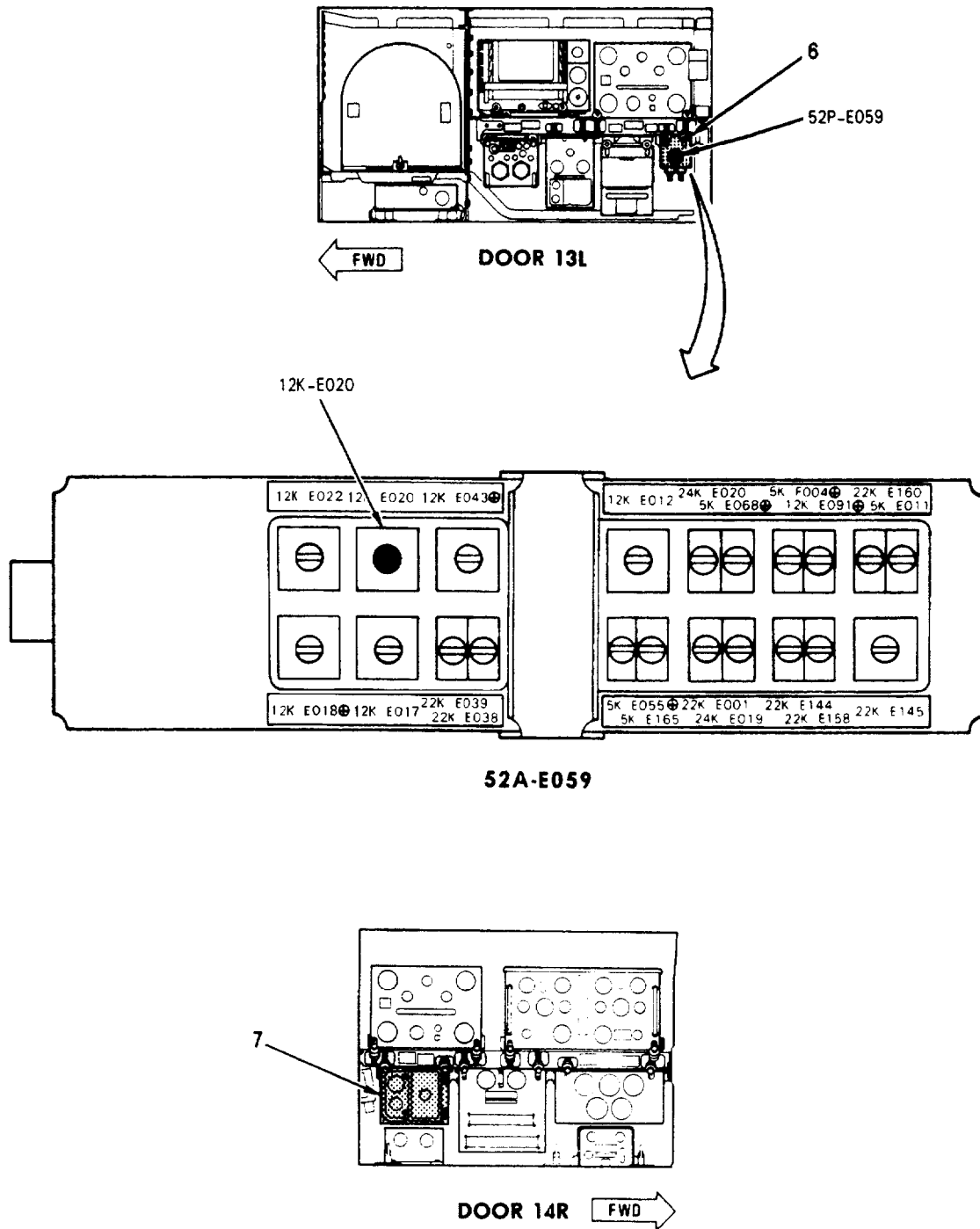


Figure 1. External Fuel System Component Locator (Sheet 4)

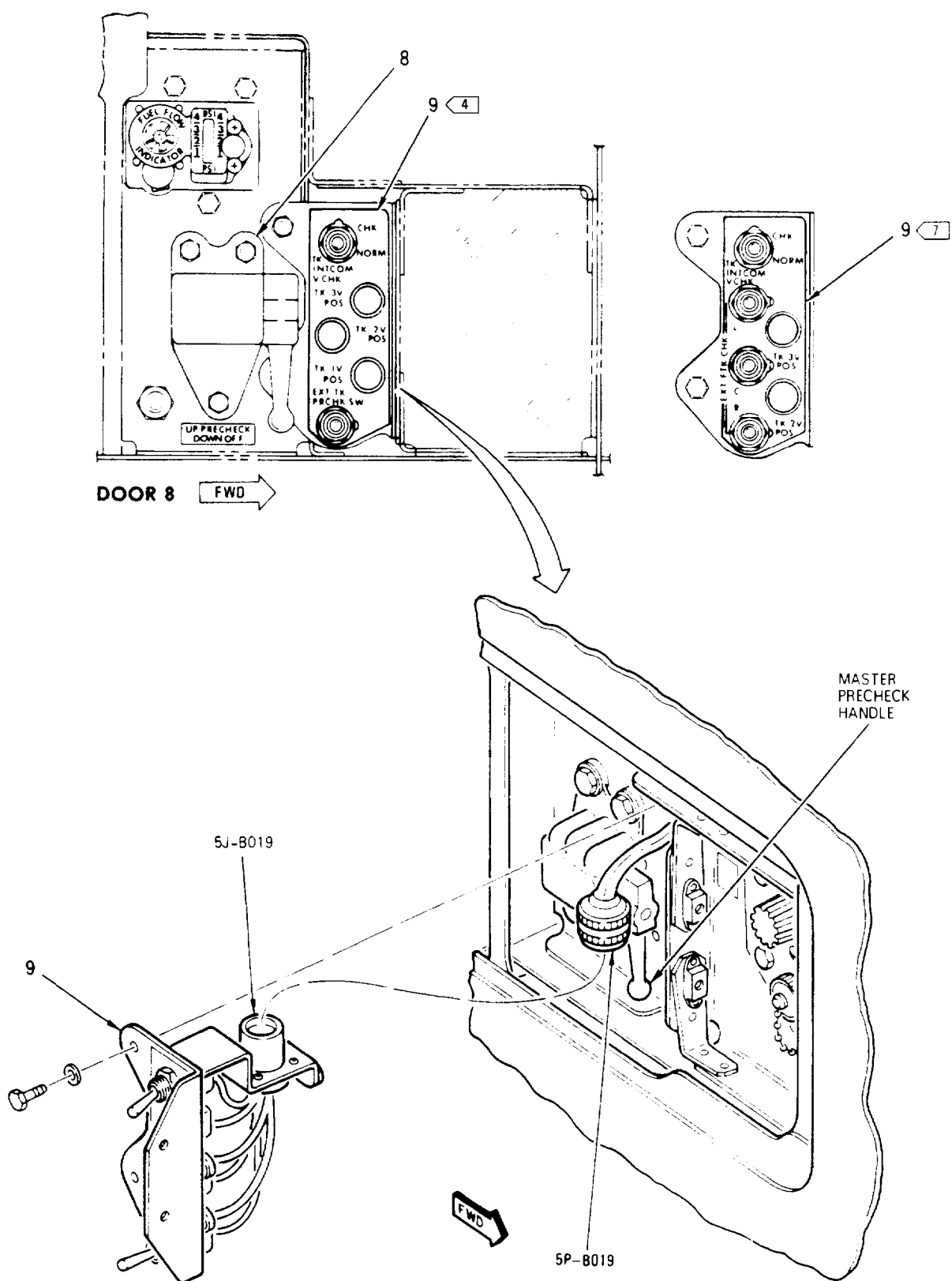


Figure 1. External Fuel System Component Locator (Sheet 5)

01100105

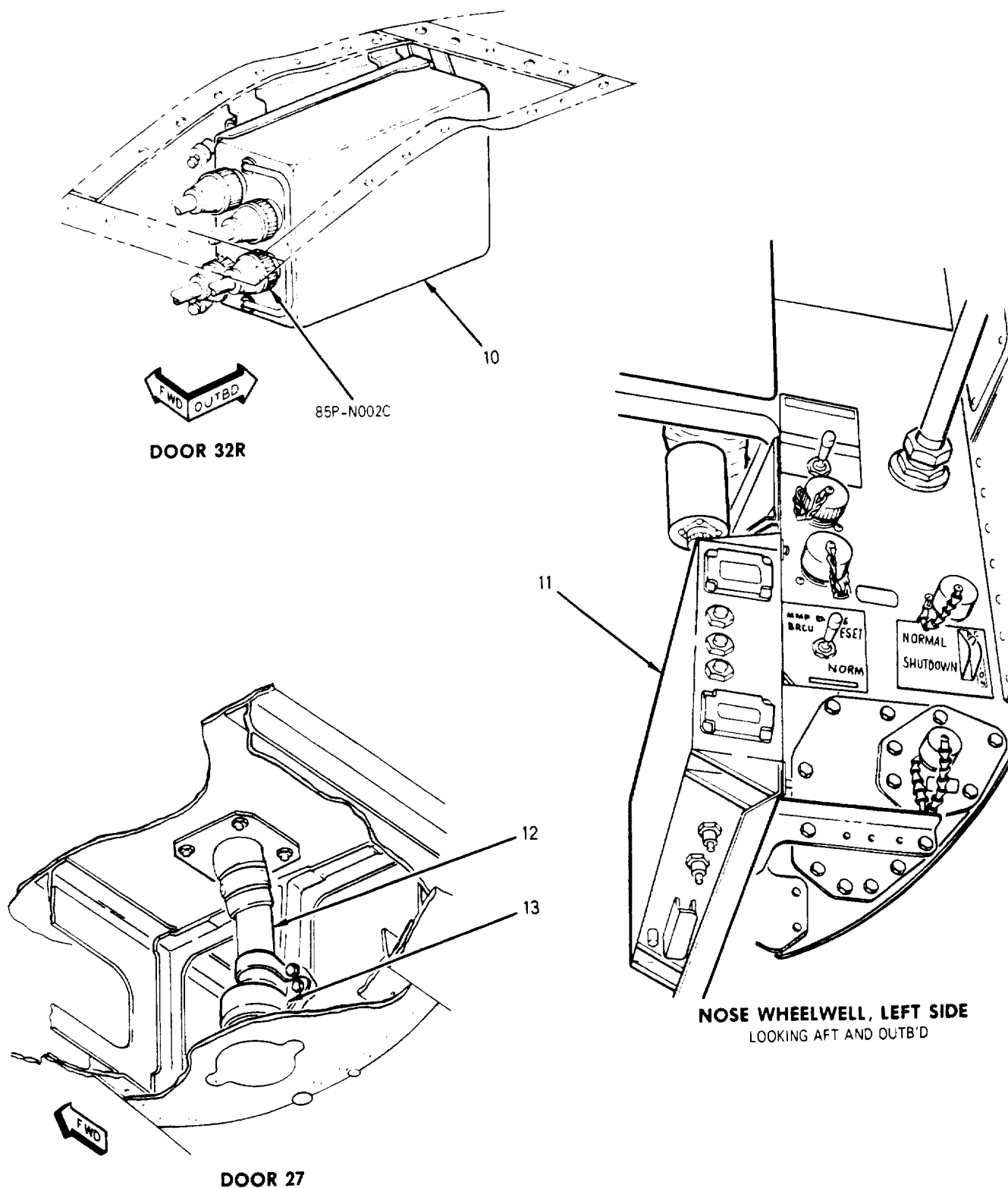


Figure 1. External Fuel System Component Locator (Sheet 6)

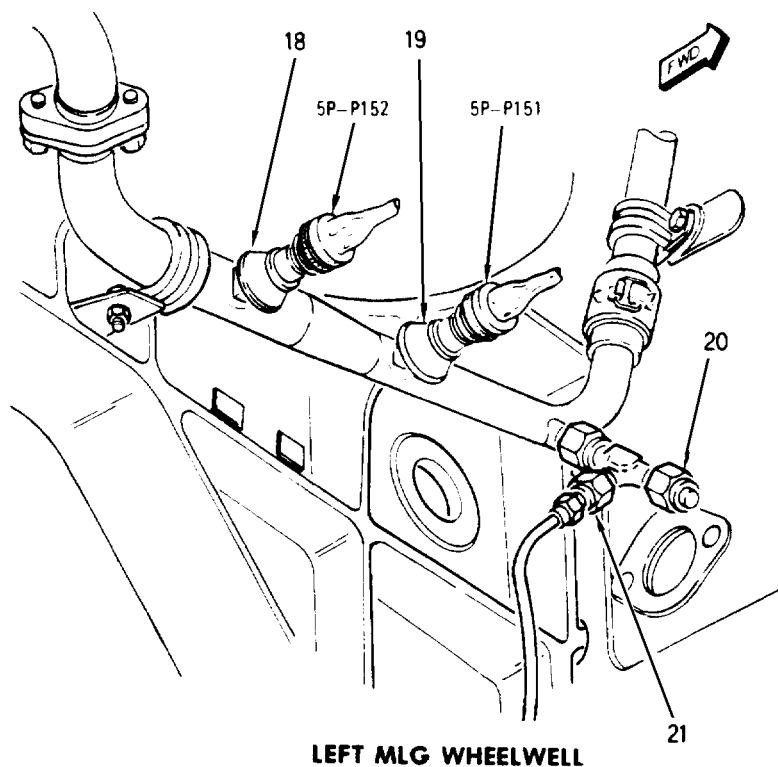
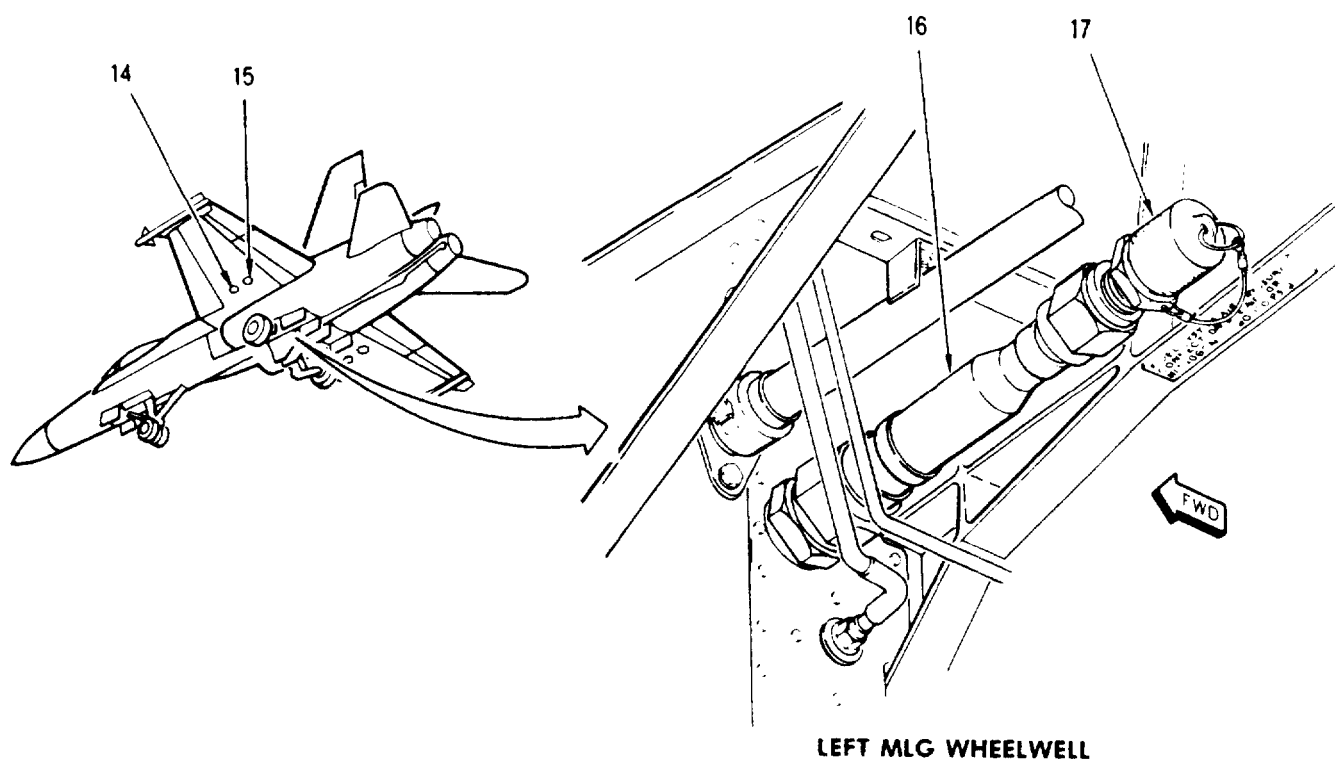


Figure 1. External Fuel System Component Locator (Sheet 7)

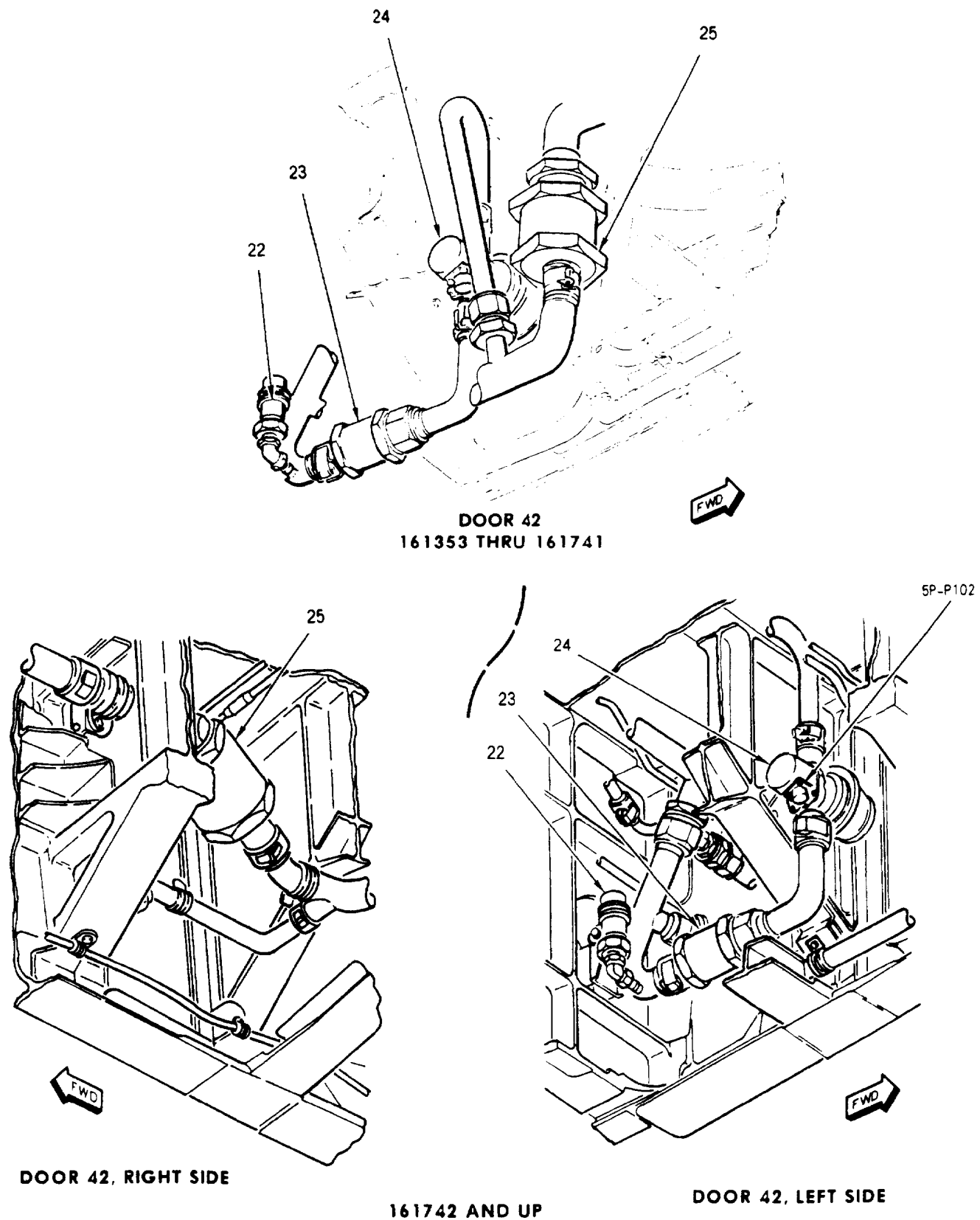


Figure 1. External Fuel System Component Locator (Sheet 8)

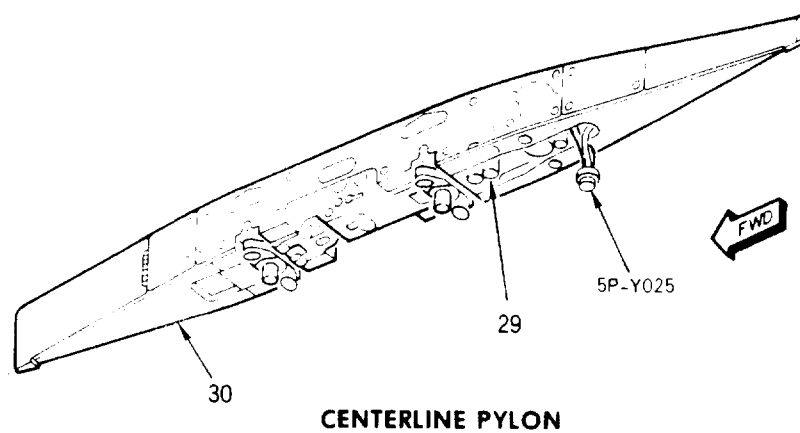
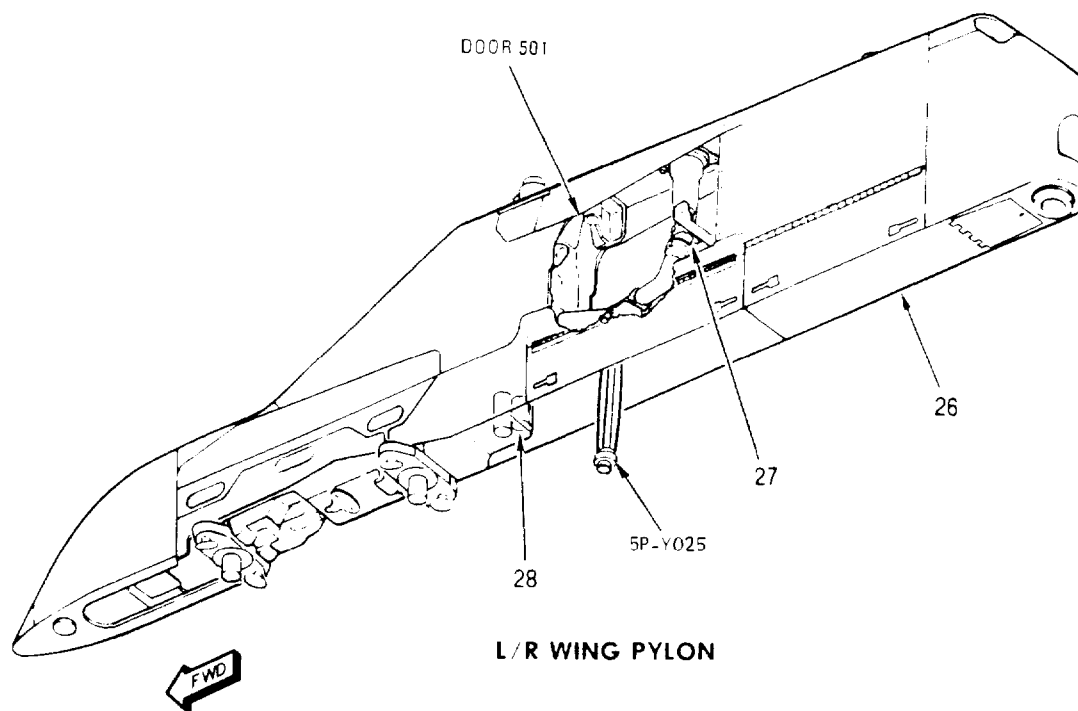
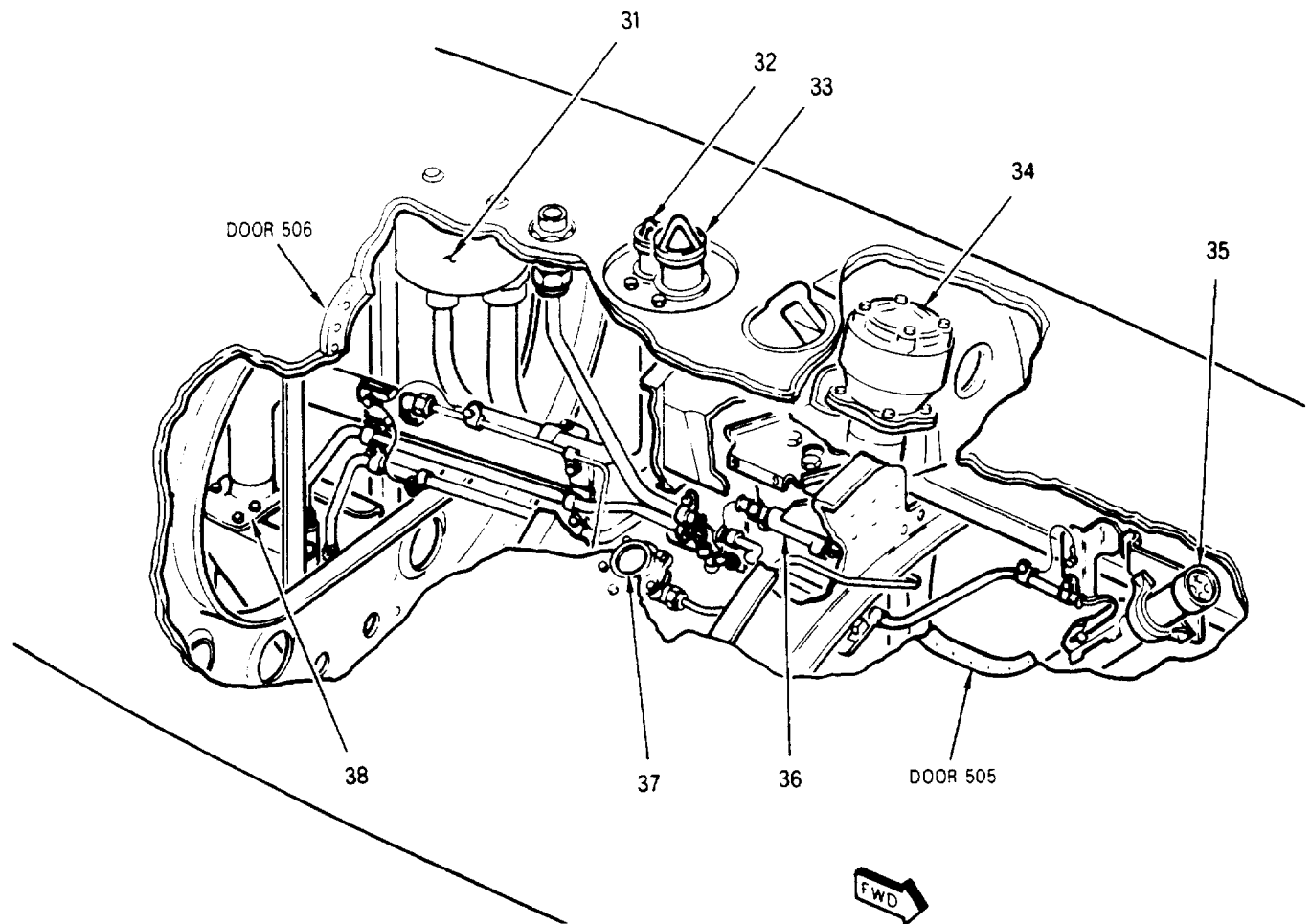


Figure 1. External Fuel System Component Locator (Sheet 9)



AIRCRAFT FUEL TANK FPU-6/A (ELLIPTICAL)

Figure 1. External Fuel System Component Locator (Sheet 10)

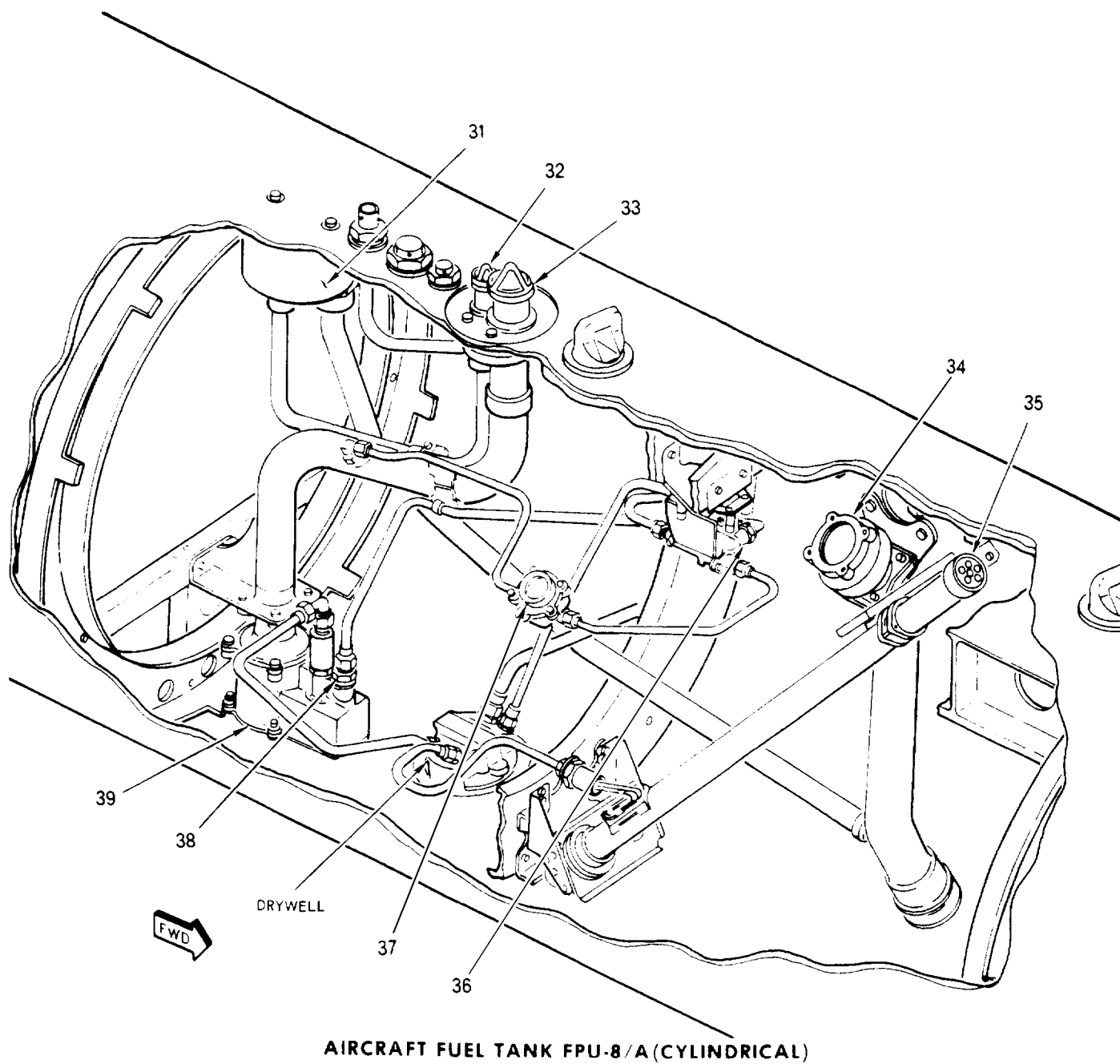


Figure 1. External Fuel System Component Locator (Sheet 11)

Nomenclature	Index No.	Ref Des
AIRCRAFT FUSELAGE CENTERLINE PYLON SUU-62/A	30	61A-Z506
AIRCRAFT WING PYLON SUU-63/A	26	61A-W507
ARRESTING HOOK CONTROL HANDLE	2	19A-J003
BLEED AIR CHECK VALVE	25	5VAT506
CENTERLINE PYLON TO EXTERNAL TANK FUEL/AIR COUPLING VALVE	29	5VAZ629
CENTERLINE PYLON FLAME ARRESTOR	12	5VAR525
DIGITAL DISPLAY INDICATOR ID-2150/ASM-612	11	85A-G003
EXTERNAL FUEL SYSTEM AIR PRESSURE SWITCH (5PSI)	19	5S-P151
EXTERNAL FUEL SYSTEM AIR PRESSURE SWITCH (34PSI)	18	5S-P152
EXTERNAL FUEL SYSTEM GROUND TEST CONNECTOR	20	
EXTERNAL FUEL SYSTEM PRESSURIZATION BLEED ORIFICE	21	5VAP654
EXTERNAL FUEL TANK		
FUEL LEVEL CONTROL PILOT VALVE	36	5L-Y060
FUEL QUANTITY TRANSMITTER	35	5A-Y062
MANUAL PRECHECK VALVE	37	5VAY631
PRESSURE RELIEF VALVE	34	5VAY641
PRESSURIZATION AND VENT VALVE	31	5VAY630
TO PYLON AIR PROBE	32	5VAY642
TO PYLON FUEL PROBE	33	5VAY637
REFUEL/TRANSFER CHECK VALVE	38	5VAY688
REFUEL/TRANSFER SHUTOFF VALVE	39	5L-Y061
EXTERNAL FUEL TANK AIR PRESSURE REGULATOR	24	5L-P102
EXTERNAL FUEL TANK AIR PRESSURE REGULATOR CHECK VALVE	23	5VAR620
EXTERNAL TANKS AIR PRESSURE TRANSDUCER	22	5MTR130
FUEL CHECK PANEL	9	5A-B019
7 L EXT F TK CHK SWITCH		5S-B022
7 R EXT F TK CHK SWITCH		5S-B020
7 R EXT F TK CHK SWITCH		5S-B021
4 EXT TK PRCHK SW		5S-B020

Figure 1. External Fuel System Component Locator (Sheet 12)

Nomenclature	Index No.	Ref Des
FUEL SYSTEM CONTROL PANEL EXT TANKS-WING SWITCH EXT TANKS-CTR SWITCH PROBE CONTROL SWITCH	4	5S-H027 5S-H017 5S-H018 5S-H005
FUSELAGE TO PYLON FUEL COUPLING VALVE	13	5VAR522
GROUND AIR PRESSURIZATION CONNECTOR	17	
GROUND AIR PRESSURIZATION FILTER	16	5FAP638
LH ADVISORY AND THREAT WARNING INDICATOR PANEL	1	52A-H073
LEFT DIGITAL DISPLAY INDICATOR IP-1317/()	3	80A-H001
MASTER PRECHECK VALVE	8	5VAD624
NO. 3 RELAY PANEL ASSEMBLY	6	52A-E059
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	5	52A-C159
SIGNAL DATA CONVERTER CV-3493/ASM-612	10	85A-N002
SIGNAL DATA RECORDER RO-508/ASM-612	7	85A-F001
WING AIR COUPLING VALVES LEFT	15	5VAU577
RIGHT	15	5VAV578
WING FUEL COUPLING VALVES LEFT	14	5VAU575
RIGHT	14	5VAV576
WING PYLON FLAME ARRESTOR	27	5VAW673
WING PYLON TO EXTERNAL TANK FUEL/AIR COUPLING VALVE	28	5VAW623

LEGEND

1. AIRCRAFT DOOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.

- 2 161353 THRU 161528 BEFORE F/A-18 AFC 41.
- 3 161702 AND UP; ALSO 161363 THRU 161528 AFTER F/A-18 AFC 41.
- 4 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39.
- 5 161353 THRU 161519.
- 6 161520 AND UP.
- 7 161353 THRU 161761 BEFORE F/A-18 AFC 39.a

Figure 1. External Fuel System Component Locator (Sheet 13)

ORGANIZATIONAL MAINTENANCE**TESTING AND TROUBLESHOOTING****INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM**

Title	WP Number
Transfer Leak Test	012 02
No 1. Fuel Tank Transfer Test	012 03
No 2. Fuel Tank Cycle Test	012 04
No 3. Fuel Tank Cycle Test	012 05
No 4. Fuel Tank Transfer Test	012 06
Engine Fuel Shutoff Test and Turbine Boost Pump Test	012 07
Internal Fuel Transfer and Engine Fuel Supply System Test, 161353 THRU 161761	012 08
Internal Fuel Transfer and Engine Fuel Supply System Test, 161924 AND UP	012 09

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TRANSFER LEAK TEST
INTERNAL FUEL TRANSFER SYSTEM

Reference Material

Plane Captain Manual A1-F18AC-PCM-000
Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Hookup, Figure 2	13
Transfer Leak Test Component Locator, Figure 1	10
Transfer Leak Test, Table 1	1
Wrong Test Set Indications, Table 2	8

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Dec 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle. (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—

Table 1. Transfer Leak Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		

Table 1. Transfer Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1001	Fuel System Test Set	
74D460108-1003	Fuel System Test Set	
—	External Electrical Power Source	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
Component locations are shown in figure 1.		
1. FUEL SYSTEM TEST SET HOOKUP. a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010). b. Hook up fuel test set cable 74D462025-1003 per substeps below: (1) On fuel system test set, remove J1 protective cap (fig 2). (2) Connect test cable P1 to J1 on test set. (3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell). (4) Position test set near right wing tip.		

Table 1. Transfer Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>Step below required to hook up test FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hook up requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hook up is limited to land based aircraft only.</p> <p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per substeps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 2).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hook up fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 2).</p>		

Table 1. Transfer Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side) (fig 2).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 2), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICATOR- Selector knob to TRANS</p> <p>f. On 74D460108-1003 test set, set switches per substeps below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - ON S14 - ON S15 - OFF</p> <p>g. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>h. On test set, close CB1 circuit breaker.</p> <p>i. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>2. TRANSDUCER CHANNEL BIT. (QA)</p>	<p>D1 and D2 displays all minus signs.</p>	<p>Do table 2.</p>

Table 1. Transfer Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release. b. Set switch S9 to SCALE and hold. c. Release switch S9. 3. TRANSDUCER NULL. (QA)	D2 displays 0000 ± 00.1 . D2 displays 25 to 35 PSI.	Do table 2. Do table 2.
<p style="text-align: center;">NOTE</p> <p>The FUS XFER pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will display. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to FUS XFER. Record D2 display (non-nulled). b. Set switch S9 to NULL and release. 4. PREPARATION. a. Defuel aircraft (A1-F18AC-PCM-000). b. On cockpit EXT LT control panel assembly (fig 1), make sure INTR WING switch is set to NORM. c. If external fuel tank(s) are installed, on FUEL system control panel, set the EXT TANKS WING and CTR switch(es) to STOP. d. Move master precheck handle to UP PRECHECK (door 8). e. On test set, set switches as listed below:	D2 displays 000.	Do table 2, WP036 00.

Table 1. Transfer Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>S1 - WING XFER S2 - FUS XFER S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - closed D3 - FUEL INDICATOR- (TRANS setting)</p> <p>f. On 74D460108-1003 test set, set switches as listed below:</p> <p>S12 - OFF S13 - NORM S14 - ON S15 - ON</p> <p>g. Remove doors 141L/R (A1-F18AC-LMM-010).</p> <p>h. Start refueling using electrical power (A1-F18AC-PCM-000).</p>	<p>In door 8, FUEL FLOW INDICATOR stops rotating within 45 seconds (precheck).</p>	<p>Do Refuel/Defuel System Pressure Test (Internal Tanks), WP003 00.</p>
<p>NOTE</p> <p>Steps i and j are required to close tank 2 and tank 3 gravity feed check valves. This prevents fuel migration from tank 1 to tank 2 and from tank 4 to tank 3.</p>		
<p>i. On individual tank precheck valve (doors 141 L/R), pull T2 and T3 handles down (tanks 2 and 3 start filling). Fill tank 2 to 500 to 700 lb, then push T2 handle up. When tank 3 fills to 500 to 700 lb, push T3 handle up.</p> <p>j. On individual tank precheck valve (doors 141 L/R), pull T1 and T4 handles down (tanks 1 and 4 start filling). When tank 1 fills to 200 to 400 lb, push T1 handle up. When tank 4 fills to 500 to 900 lb, push T4 handle up.</p>		
<p>NOTE</p> <p>The design of wing damage shutoff valve allows reverse flow of refuel pressure to pressurize transfer piping when S6 switch on test set is set to CLOSED.</p>		

Table 1. Transfer Leak Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>k. On fuel system test set, set switch S6 to CLOSED. D1 and D2 display approximately the same psi as the refueling pressure.</p> <p>l. Record each internal fuel tank amount (test starting amounts).</p> <p>5. TEST. (QA)</p> <p>a. Maintain fuel pressure for 30 minutes. Record each internal fuel tank amount again (test completion amounts).</p> <p>b. Subtract internal fuel tank starting amounts from test completion amounts.</p>	<p>1. Tank 1 did not increase more than 100 total lb.</p> <p>2. Tank 2 did not increase more than 100 total lb.</p> <p>3. Tank 3 did not increase more than 100 total lb.</p> <p>4. Tank 4 did not increase more than 200 total lb.</p> <p>5. Each wing tank did not increase more than 200 total lb.</p>	<p>Do table 8, WP013 00.</p> <p>Do table 9, WP013 00.</p> <p>Do table 10, WP013 00.</p> <p>Do table 11, WP013 00.</p> <p>Do table 12, WP013 00.</p>
<p>6. FINAL.</p> <p>a. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>b. Turn off and disconnect fuel servicing equipment (A1-F18AC-PCM-000).</p> <p>c. Disconnect fuel system test set.</p> <p>d. On FUEL system control panel, set EXT TANKS WING and CTR switches to NORM.</p>		

Table 1. Transfer Leak Test (Continued)

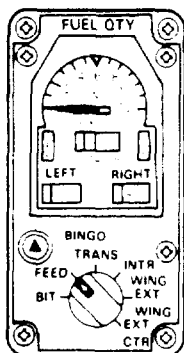
Procedure	Normal Indication	Remedy for Abnormal Indication
<div>e. Set master precheck valve handle to DOWN OFF.</div> <div>f. Close doors 8 and if applicable, 46R. Install door 141L and 141R (A1-F18AC-LMM-010).</div>		

Table 2. Wrong Test Set Indications

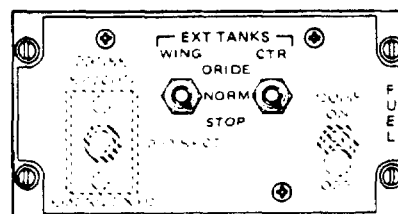
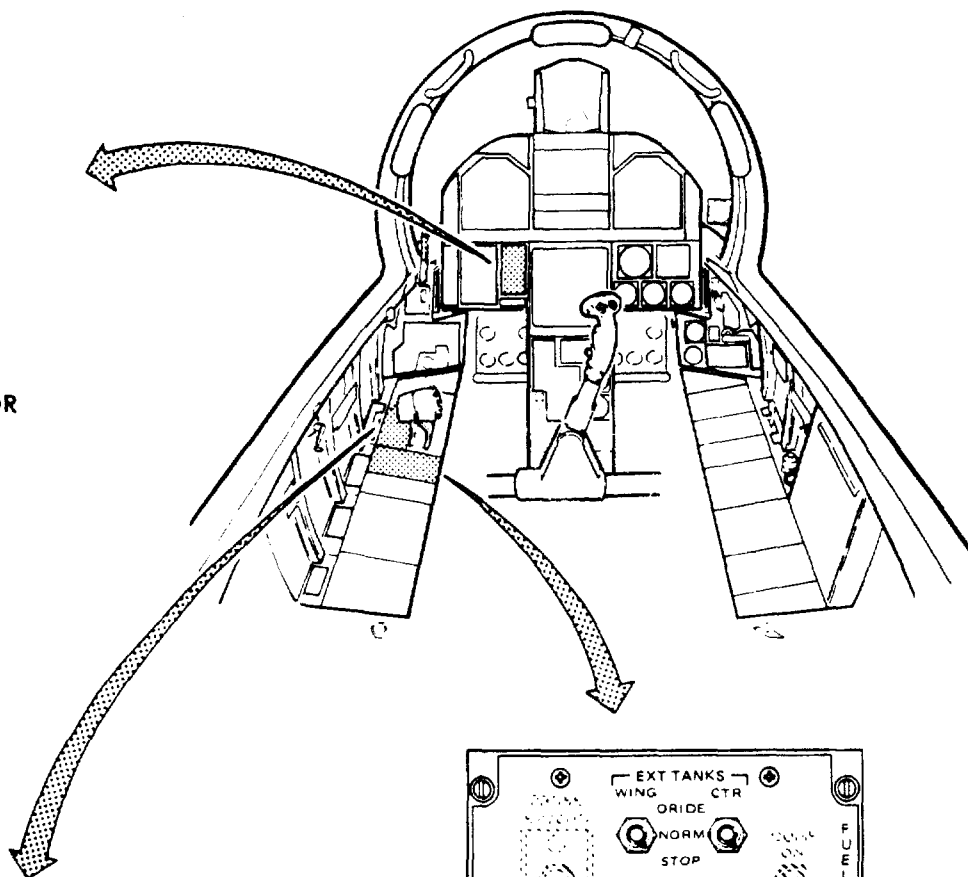
Support Equipment Required				
Part Number or Type Designation	Nomenclature			
—	External Air Source (20 to 40 psi)			
Materials Required				
Specification or Part Number	Nomenclature			
TT-I-735, Grade A (FSCM 81348)	Isopropyl Alcohol			
CCCC440TY1CL1 (FSCM 81348)	Cheesecloth			
Malfunction is caused by one of the items listed below:				
Test Set Test Set Receptacle Contamination				
Procedure	No	Yes		
<div>NOTE</div> <p>Fuel system test set receptacles J1 and J2 are subject to foreign particles which could cause shorting of pins.</p> <div>a. Clean receptacles J1 and J2 per substeps below:</div> <div><div>WARNING</div><p>Isopropyl alcohol is highly flammable and toxic. Do not use near open flame or sparks. Use only in well ventilated areas.</p><div>(1) Clean receptacles with cheesecloth moistened with isopropyl alcohol.</div></div>				

Table 2. Wrong Test Set Indications (Continued)

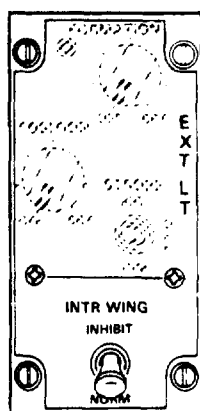
Procedure	No	Yes
<div>WARNING</div> <p>To prevent injury to personnel, do not direct compressed air against skin.</p> <p>(2) Blow loose foreign particles from receptacles using dry, filtered, low pressure (20 to 40 psi) air.</p> <p>(3) If test set malfunction still exists, replace test set.</p>		
	-	-



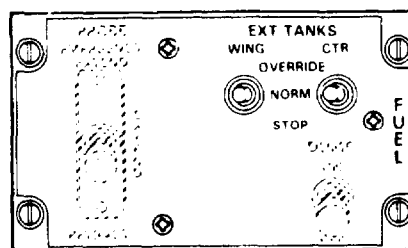
FUEL QTY INDICATOR



161702 AND UP; ALSO 161353
THRU 161528 AFTER F/A-18 AFC 41



EXT LT CONTROL
PANEL ASSEMBLY



161353 THRU 161528 BEFORE
F/A-18 AFC 41

FUEL SYSTEM CONTROL PANEL

Figure 1. Transfer Leak Test Component Locator (Sheet 1 of 3)

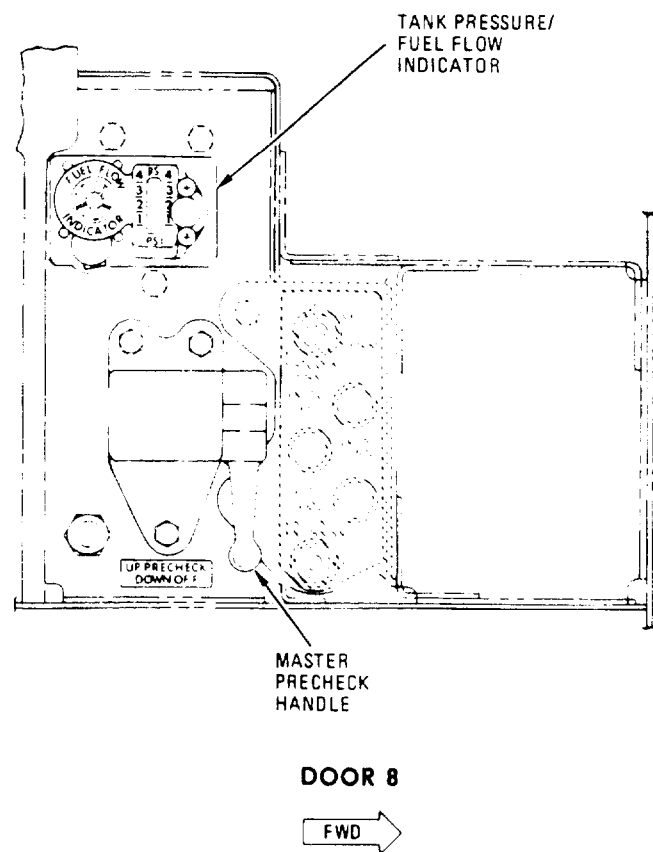


Figure 1. Transfer Leak Test Component Locator (Sheet 2)

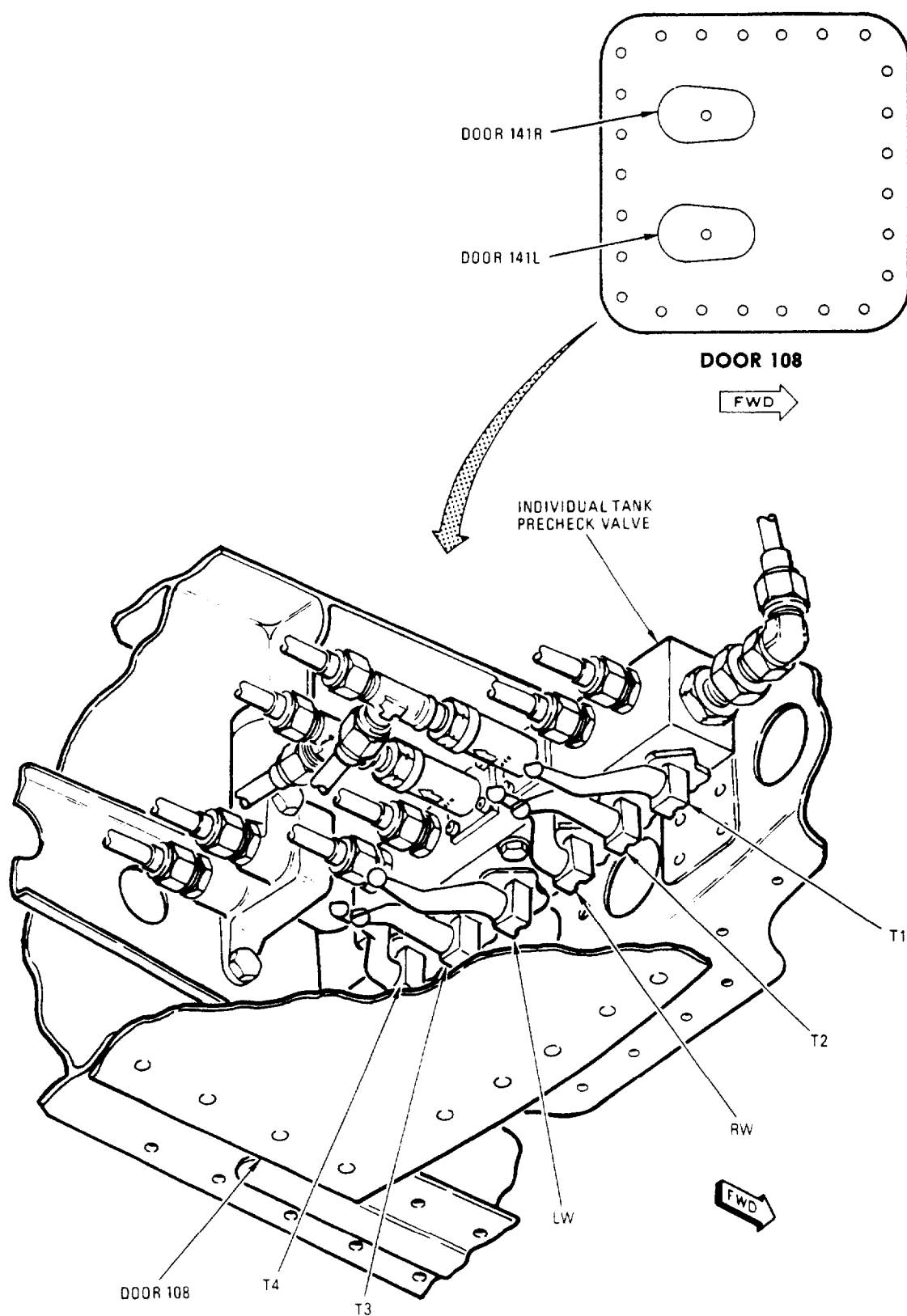


Figure 1. Transfer Leak Test Component Locator (Sheet 3)

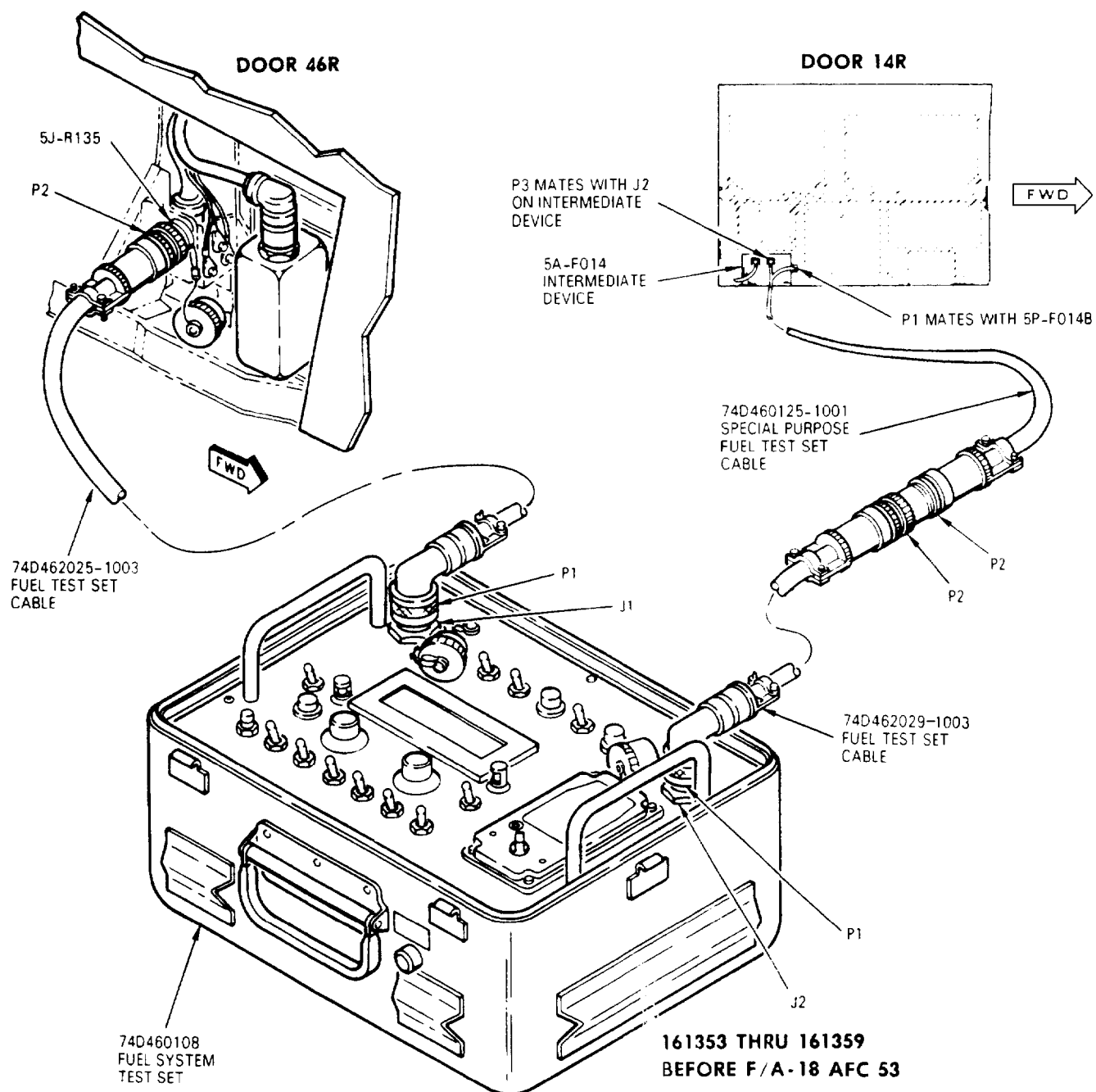


Figure 2. Fuel System Test Set Hookup (Sheet 1 of 5)

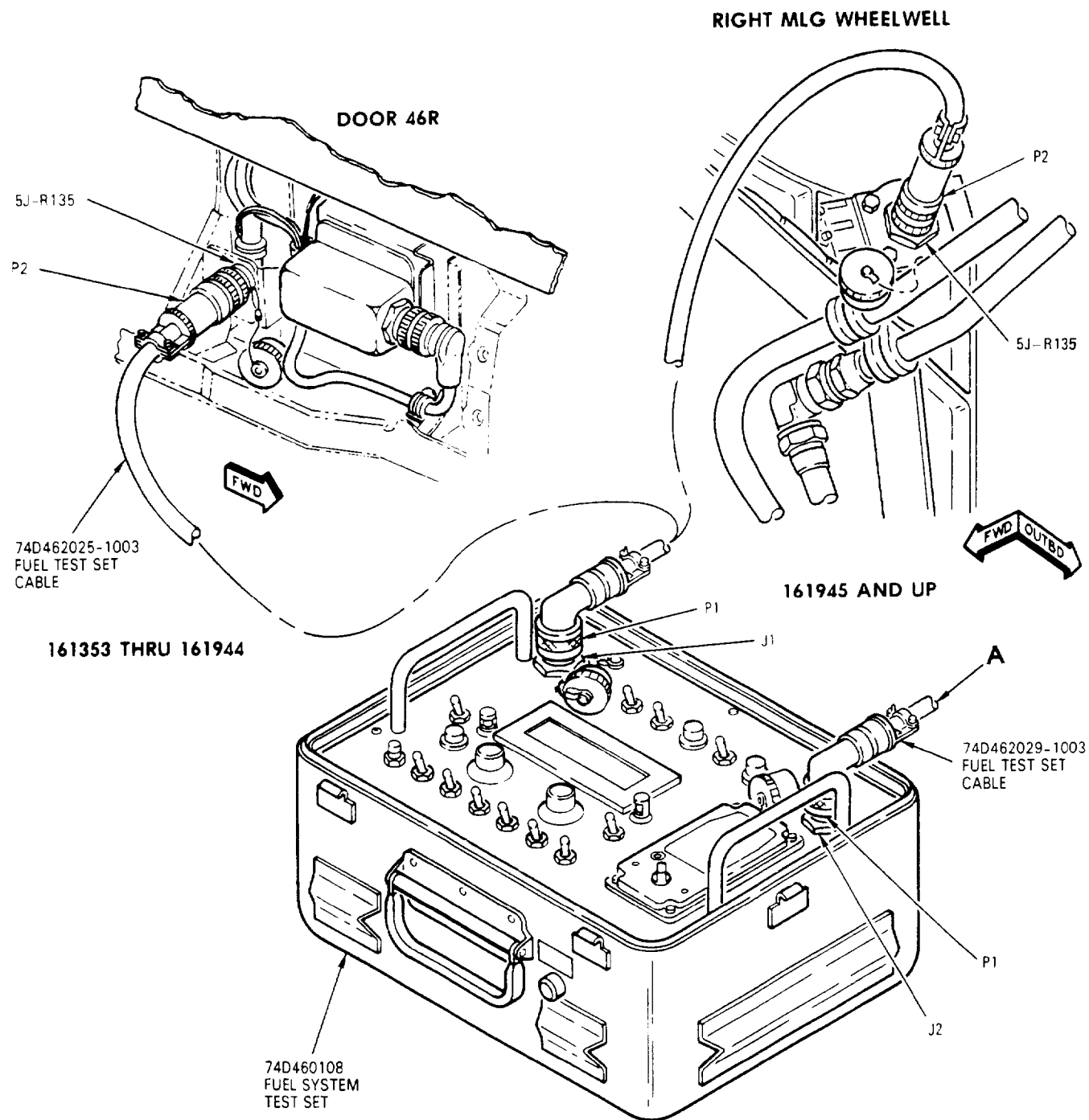
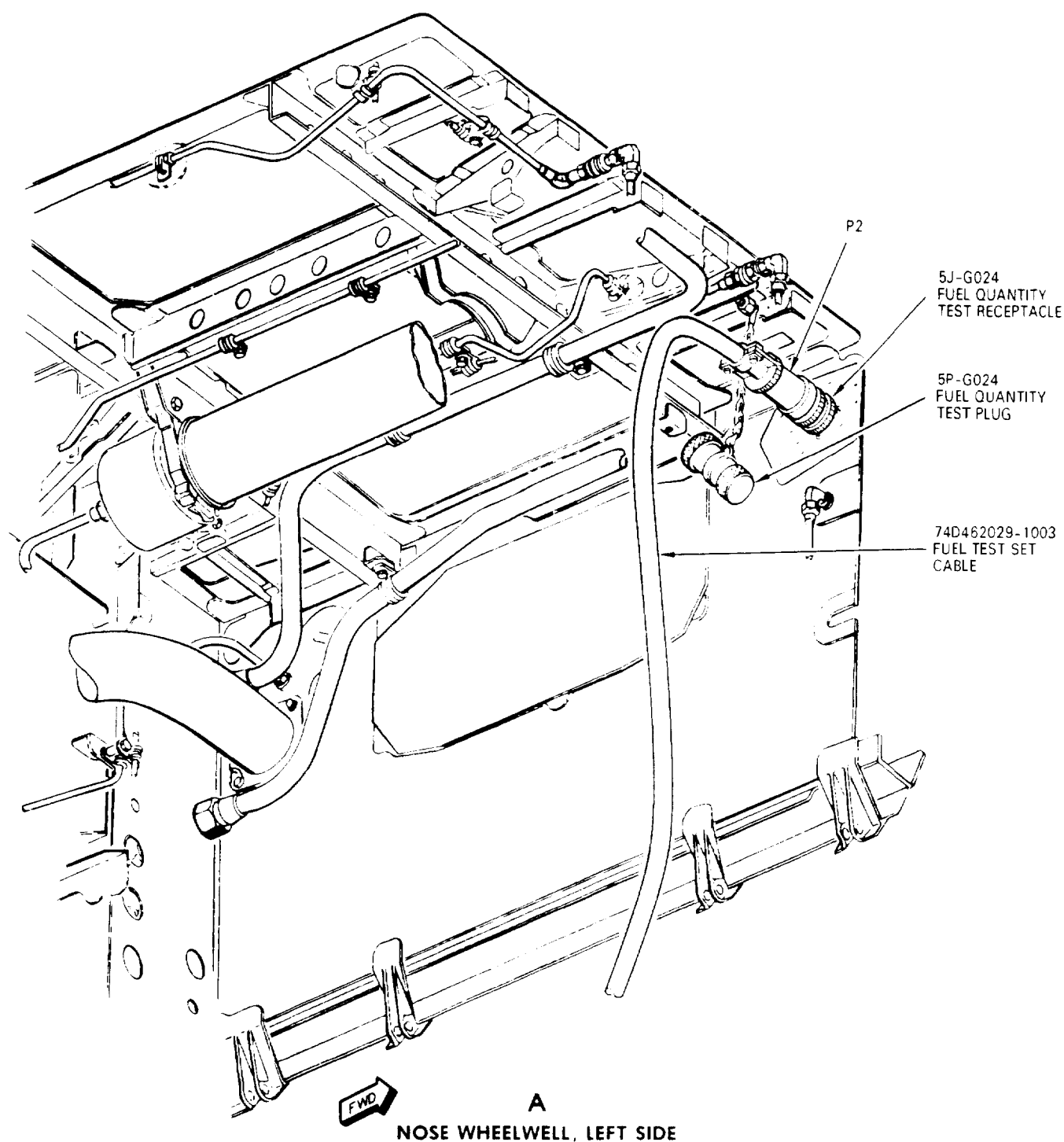
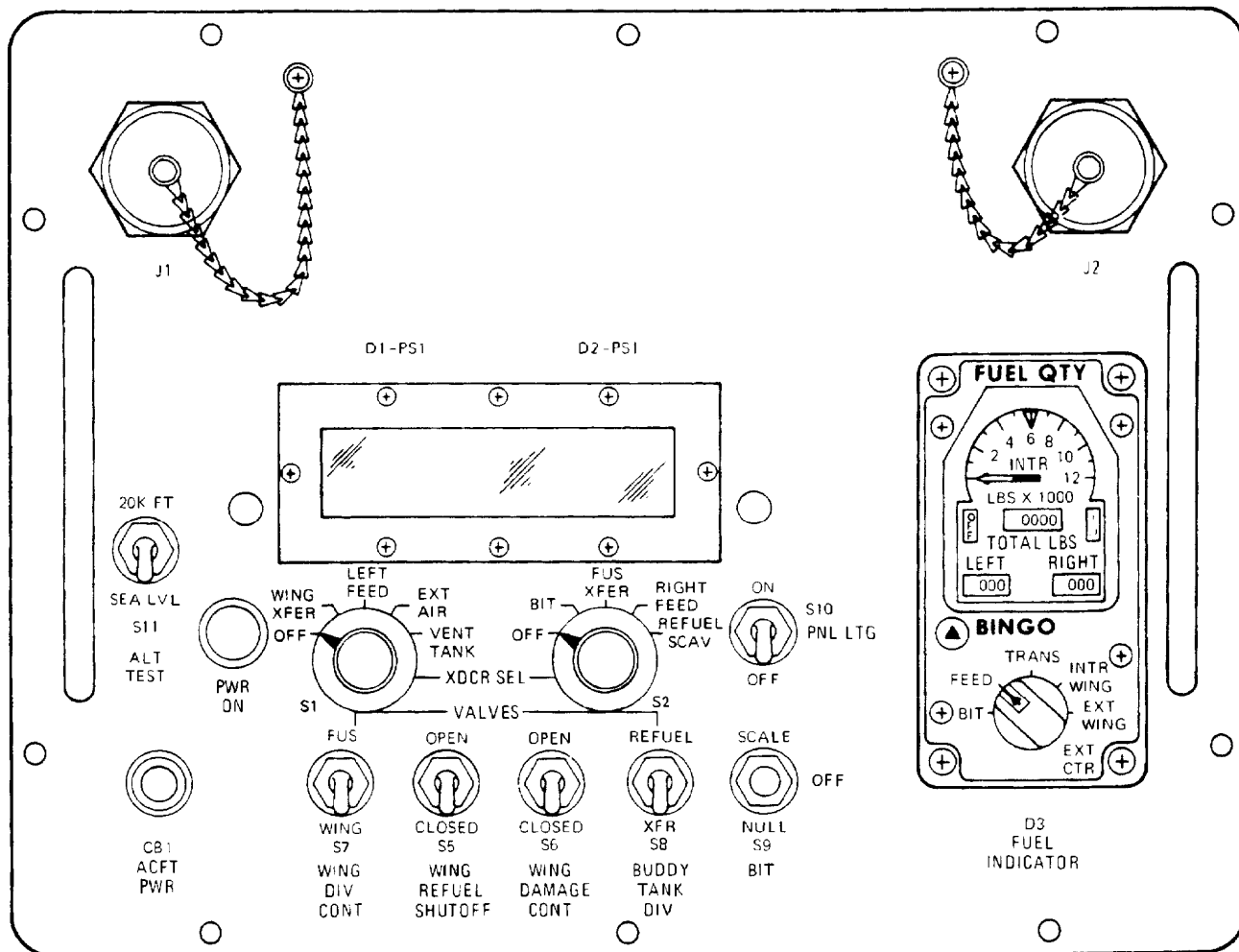


Figure 2. Fuel System Test Set Hookup (Sheet 2)



161360 AND UP; ALSO 161353
THRU 161359 AFTER F/A-18 AFC 53

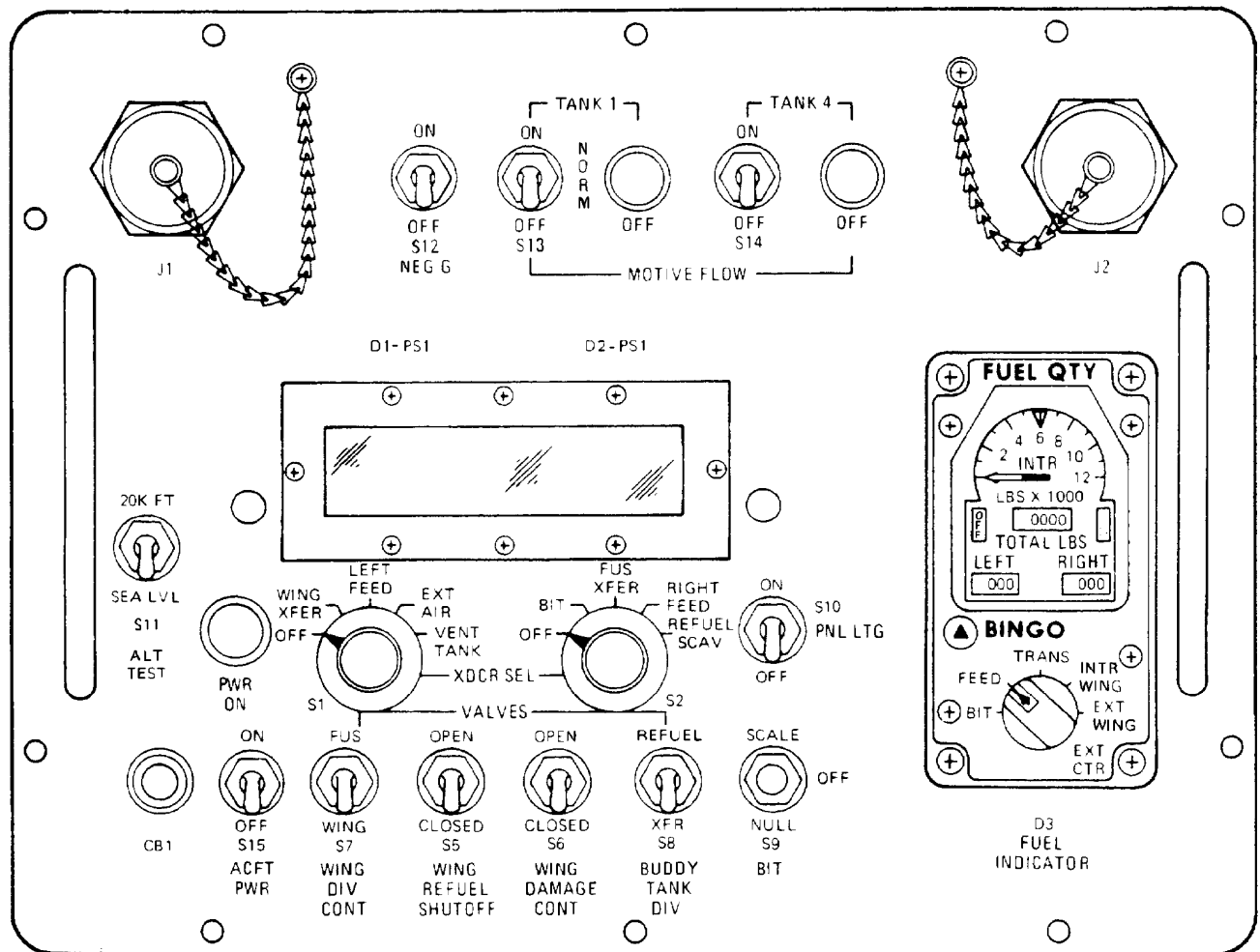
Figure 2. Fuel System Test Set Hookup (Sheet 3)



FUEL SYSTEM TEST SET 74D460108-1001

B

Figure 2. Fuel System Test Set Hookup (Sheet 4)



FUEL SYSTEM TEST SET 74D460108-1003

C

Figure 2. Fuel System Test Set Hookup (Sheet 5)

THIS PAGE INTENTIONALLY LEFT BLANK.

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
NO. 1 FUEL TANK TRANSFER TEST
INTERNAL FUEL TRANSFER SYSTEM**

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000
Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Controls and Displays, Figure 5	16
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 3	13
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 4	14
No. 1 Fuel Tank Not Transferring, Table 2	9
No. 1 Fuel Tank Transfer Test Component Locator, Figure 1	10
No. 1 Fuel Tank Transfer Test, Table 1	1
No. 1 Fuel Tank Transfer Test Troubleshooting Component Locator, Figure 2	12

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Dec 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—

Table 1. No. 1 Fuel Tank Transfer Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication																		
<p>Related Systems Required</p> <p>Electrical System Hydraulic System Power Plant and Related Systems Secondary Power System</p> <p>Support Equipment Required</p> <p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>74D460108-1001</td><td>Fuel System Test Set</td></tr><tr><td>74D460108-1003</td><td>Fuel System Test Set</td></tr><tr><td>74D460125-1001</td><td>Special Purpose Fuel</td></tr><tr><td>(161353 THRU 161359 (LAND BASE ONLY))</td><td>Test Set Cable</td></tr><tr><td>—</td><td>External Electrical Power Source</td></tr></table> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>If this test is being done to troubleshoot a no. 1 fuel tank transfer failure, first do a transfer leak test (A1-F18AC-460-200, WP012 02). If aircraft passes leak test continue this test.</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>Component locations are shown in figure 1.</p> <p>1. PREPARATION.</p> <table><tr><td></td><td></td><td></td></tr></table> <p>NOTE</p> <p>The refuel system must master precheck to remove the possibility of a failed open tank no. 1 fuel level control shutoff valve. This failure would allow wing recirculation fuel to refill tank 1 while tank 4 empties.</p> <p>Fuel quantity gaging system must pass BIT to prevent wrong test results.</p> <p>Refuel system master precheck and fuel quantity gaging BIT tests are done during refueling.</p> <table><tr><td>a. If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 TOTAL LBS.</td><td></td><td></td></tr></table>			Part Number or Type Designation	Nomenclature	74D460108-1001	Fuel System Test Set	74D460108-1003	Fuel System Test Set	74D460125-1001	Special Purpose Fuel	(161353 THRU 161359 (LAND BASE ONLY))	Test Set Cable	—	External Electrical Power Source				a. If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 TOTAL LBS.		
Part Number or Type Designation	Nomenclature																			
74D460108-1001	Fuel System Test Set																			
74D460108-1003	Fuel System Test Set																			
74D460125-1001	Special Purpose Fuel																			
(161353 THRU 161359 (LAND BASE ONLY))	Test Set Cable																			
—	External Electrical Power Source																			
a. If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 TOTAL LBS.																				

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication									
<p>b. Rotate master precheck handle to DOWN OFF.</p> <p>c. Disconnect refueling equipment (A1-F18AC-PCM-000).</p> <p>d. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>e. Open door 10L (A1-F18AC-LMM-010).</p> <p>f. On 161520 THRU 161761 BEFORE F/A-18 AFC 39 AND F/A-18 AFC 53, on no. 7 circuit breaker/relay panel assembly (door 10L), open TANK 1 TRANSFER circuit breaker (fig 1).</p> <p>g. Set cockpit controls as listed below (fig 1):</p> <table> <tr> <th>ITEM</th><th>CONTROL</th><th>POSITION</th></tr> <tr> <td>FUEL system control panel</td><td>PROBE switch EXT TANKS WING switch CTR switch DUMP switch</td><td>RETRACT NORM NORM OFF</td></tr> <tr> <td>EXT LT control panel assembly</td><td>INTR WING switch</td><td>NORM</td></tr> </table>	ITEM	CONTROL	POSITION	FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF	EXT LT control panel assembly	INTR WING switch	NORM		
ITEM	CONTROL	POSITION									
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF									
EXT LT control panel assembly	INTR WING switch	NORM									
<p>2. FUEL SYSTEM TEST SET HOOKUP. (QA)</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 3 or 4).</p> <p>(2) Connect test cable P1 to J1 on test set.</p>											

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p>		
<p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.</p>		
<p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per sub-steps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 3).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p>		

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 4).</p> <p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 5), set switches as listed below:</p> <p>S1 - OFF S2 - OFF S5 - CLOSED S6 - CLOSED S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - OPEN D3 - FUEL INDICATOR Selector knob to TRANS</p> <p>f. On 74D460108-1003 test set, set switches per substeps below:</p> <p>S12 - OFF S13 - ON S14 - OFF S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000).</p>	<p>OFF flag red and ID flag yellow.</p>	<p>Replace test set.</p>

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>i. On test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle.</p> <p>m. Release D3 FUEL INDICATOR selector knob.</p> <p>3. TRANSDUCER CHANNEL BIT. (QA)</p> <p>a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.</p> <p>b. Set switch S9 SCALE and hold.</p> <p>c. Release switch S9.</p> <p>4. TRANSDUCER NULL. (QA)</p>	<p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p> <p>Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. RIGHT counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.</p> <p>Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counters return without stopping or jerking.</p> <p>D2 displays 0000 ±00.1.</p> <p>D2 displays 25 to 35 PSI.</p>	<p>Do table 3, WP013 02.</p> <p>Replace test set.</p> <p>Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-g024. Do Fuel Quantity Gauging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.</p> <p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Do table 3, WP013 02.</p>
<p style="text-align: center;">NOTE</p> <p>The FUS XFER pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will display. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
<p>a. Set switch S2 to FUS XFER. Record D2 display (non-nulled).</p>		

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
b. Set switch S9 to NULL and release. 5. TEST. a. Prepare aircraft for engine or APU operation (A1-F18AC-LMM-000).	D2 displays 000.	Do table 2, WP036 00.
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> WARNING </div> <p>To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
b. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do sub-steps below: (1) Shut down APU or engine (A1-F18AC-LMM-000). (2) Tell fire department and take required action to make area safe.		
<div style="text-align: center; margin: 10px auto; width: fit-content;"> NOTE </div> <p>When D2 displays approximately 5 psi, the fuel transfer shutoff valve in tank 2 is open allowing tank 1 to transfer fuel. When D2 displays approximately 50 psi, the fuel transfer shutoff valve is closed.</p>		
c. Operate APU in ground maintenance mode, left AMAD only (A1-F18AC-LMM-000) or operate engines at ground IDLE (A1-F18AC-LMM-000).	On fuel system test set, D2 displays approximately 5 to 50 PSI.	Do table 2.
d. On FUEL QTY indicator, monitor LEFT counter.	LEFT counter indicates tank 1 fuel amount decreasing at a minimum rate of 400 lb per minute.	Do table 2.
e. On FUEL QTY indicator, monitor LEFT counter to determine when tank 1 is empty.	On fuel system test set, D2 displays 0 PSI after tank 1 goes empty.	Replace no. 1 fuel tank transfer shutoff valve pilot valve, (A1-F18AC-460-300, WP105 00).
f. Record no. 1 fuel tank fuel amount.		

Table 1. No. 1 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication									
<p>g. Shut down engine or APU (A1-F18AC-LMM-000).</p> <p>6. FINAL.</p> <p>a. Disconnect fuel system test set.</p> <p>b. Set cockpit switches as listed below (fig 3):</p> <table> <tr> <th>ITEM</th><th>CONTROL</th><th>POSITION</th></tr> <tr> <td>FUEL system control panel</td><td>PROBE switch EXT TANKS WING switch CTR switch DUMP switch</td><td>RETRACT NORM NORM OFF</td></tr> <tr> <td>EXT LT control panel assembly</td><td>INTR WING switch</td><td>NORM</td></tr> </table> <p>c. Make sure master precheck valve handle in door 8 is in DOWN NORMAL position.</p> <p>d. On 161520 THRU 161761, on no. 7 circuit breaker/relay panel assembly (door 10L), close TANK 1 TRANSFER circuit breaker (fig 1).</p> <p>e. Close door 8 and, if applicable, door 46R (A1-F18AC-LMM-010).</p> <p>f. On 161248 THRU 161559 LAND BASE ONLY, do substeps below:</p> <p>(1) Connect 5P-F014B to J2 on intermediate device (door 14R).</p> <p>(2) Close door 14R (A1-F18AC-LMM-010).</p> <p>g. Refuel aircraft (A1-F18AC-PCM-000).</p>	ITEM	CONTROL	POSITION	FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF	EXT LT control panel assembly	INTR WING switch	NORM	<p>Tank 1 fuel amount does not increase above amount recorded in previous step (verifying tank 2 gravity feed check valve is closed).</p>	<p>Replace tank 2 gravity feed check valve (A1-F18AC-460-300, WP111 00).</p>
ITEM	CONTROL	POSITION									
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF									
EXT LT control panel assembly	INTR WING switch	NORM									

Table 2. No. 1 Fuel Tank Not Transferring

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this procedure.</p> <p align="center">For component location, refer to figure 2.</p> <p>Malfunction is caused by one of the items below:</p> <p align="center">No. 1 Fuel Tank Transfer Shutoff Valve and Pilot Valve No. 1 Fuel Tank Transfer Jet Ejector</p>		
Procedure	No	Yes
a. Do substeps below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Remove no. 1 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00). Is ejector clogged or inlet check valve failed closed?	b	c
b. Replace no. 1 fuel tank fuel transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP105 00) and reinstall no. 1 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00).	-	-
c. Replace no. 1 fuel tank fuel transfer jet ejector (A1-F18AC-460-300, WP106 00).	-	-

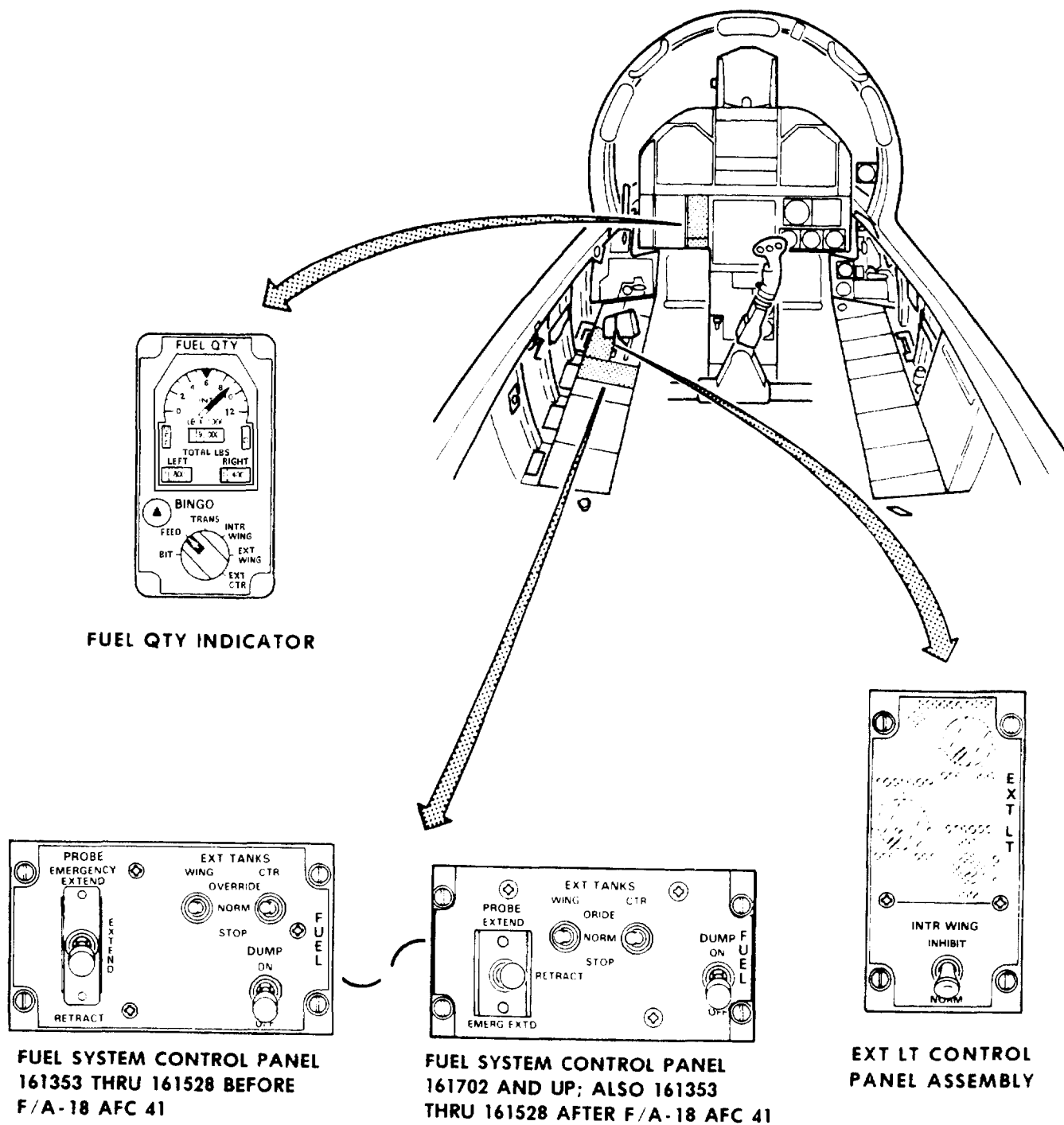
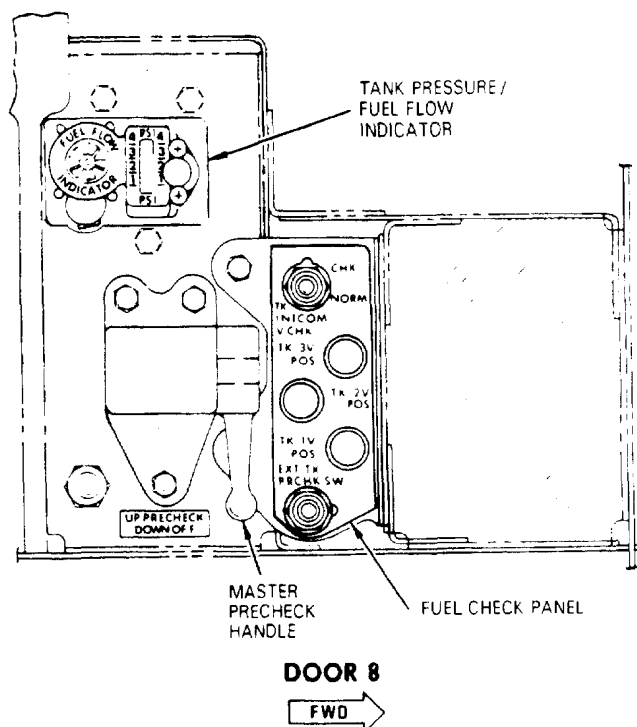
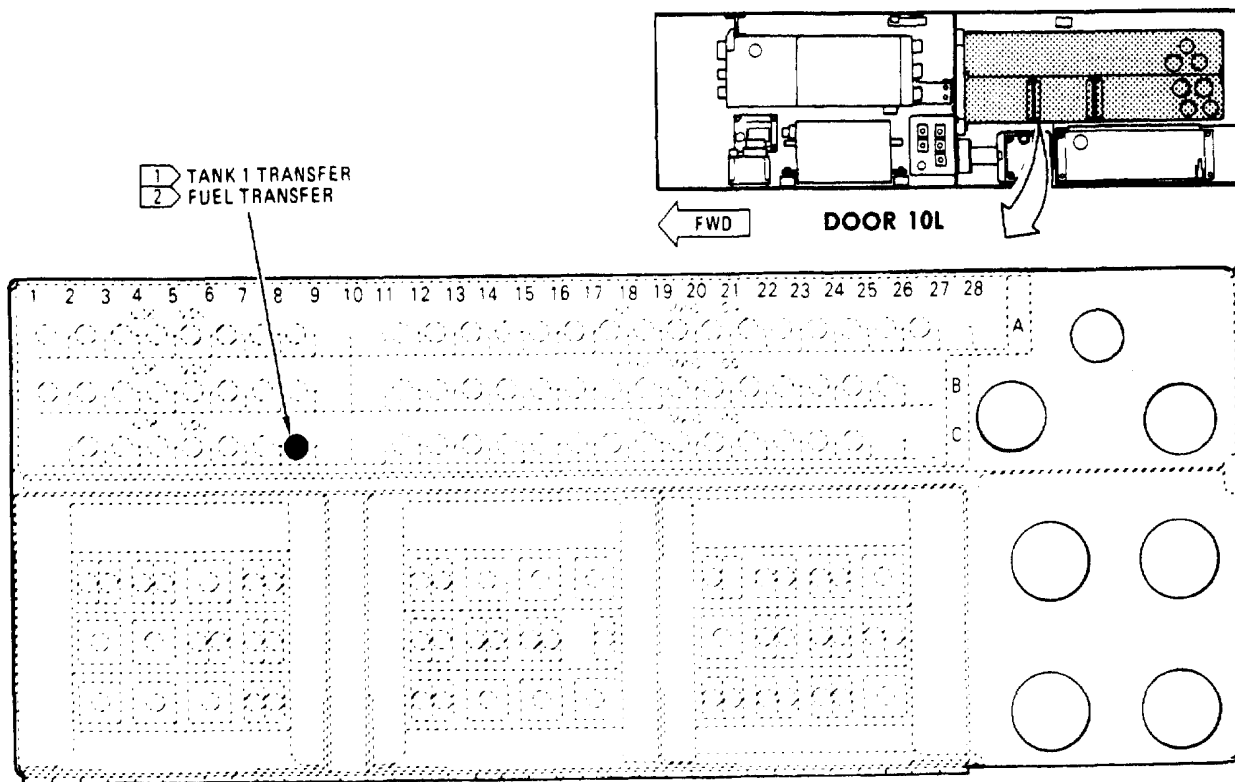


Figure 1. No. 1 Fuel Tank Transfer Test Component Locator (Sheet 1 of 2)



LEGEND

- 1 161520 THRU 161761 BEFORE
F/A-18 AFC 39 AND 53.
- 2 161924 AND UP; ALSO 161353
THRU 161761 AFTER F/A-18 AFC
39 AND 53.

Figure 1. No. 1 Fuel Tank Transfer Test Component Locator (Sheet 2)

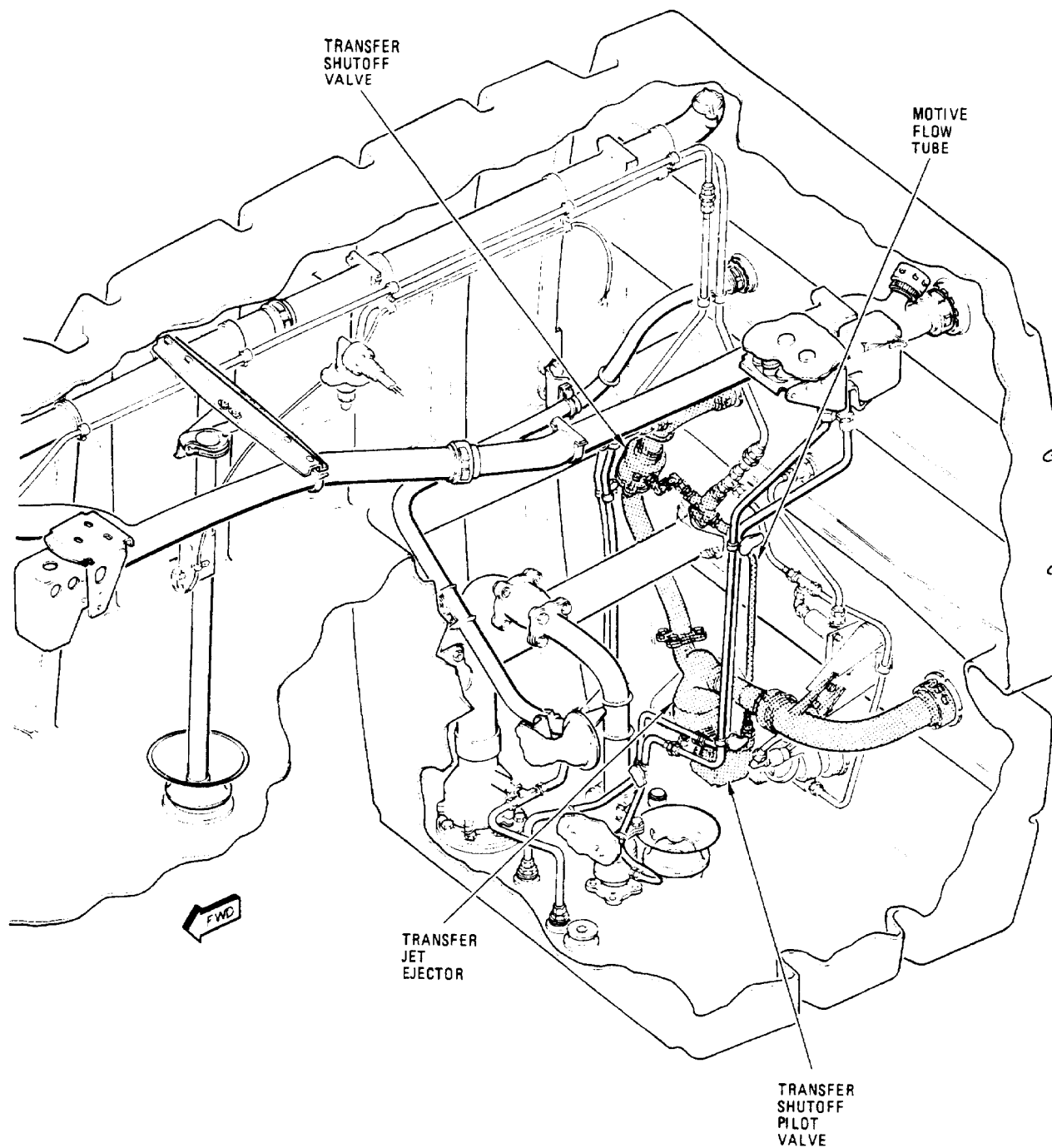
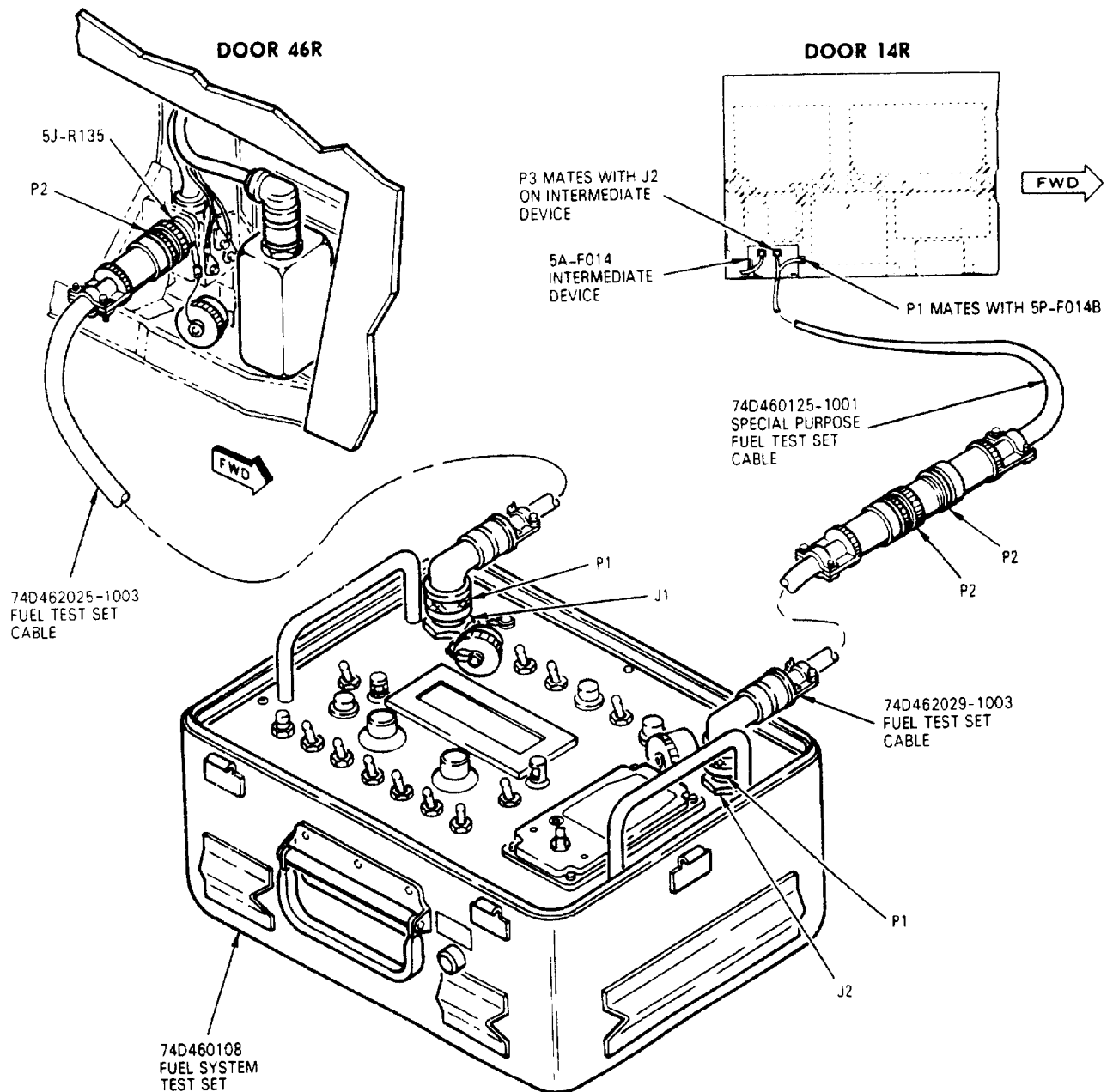


Figure 2. No. 1 Fuel Tank Transfer Test Troubleshooting Component Locator

01203002



01203003

Figure 3. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53

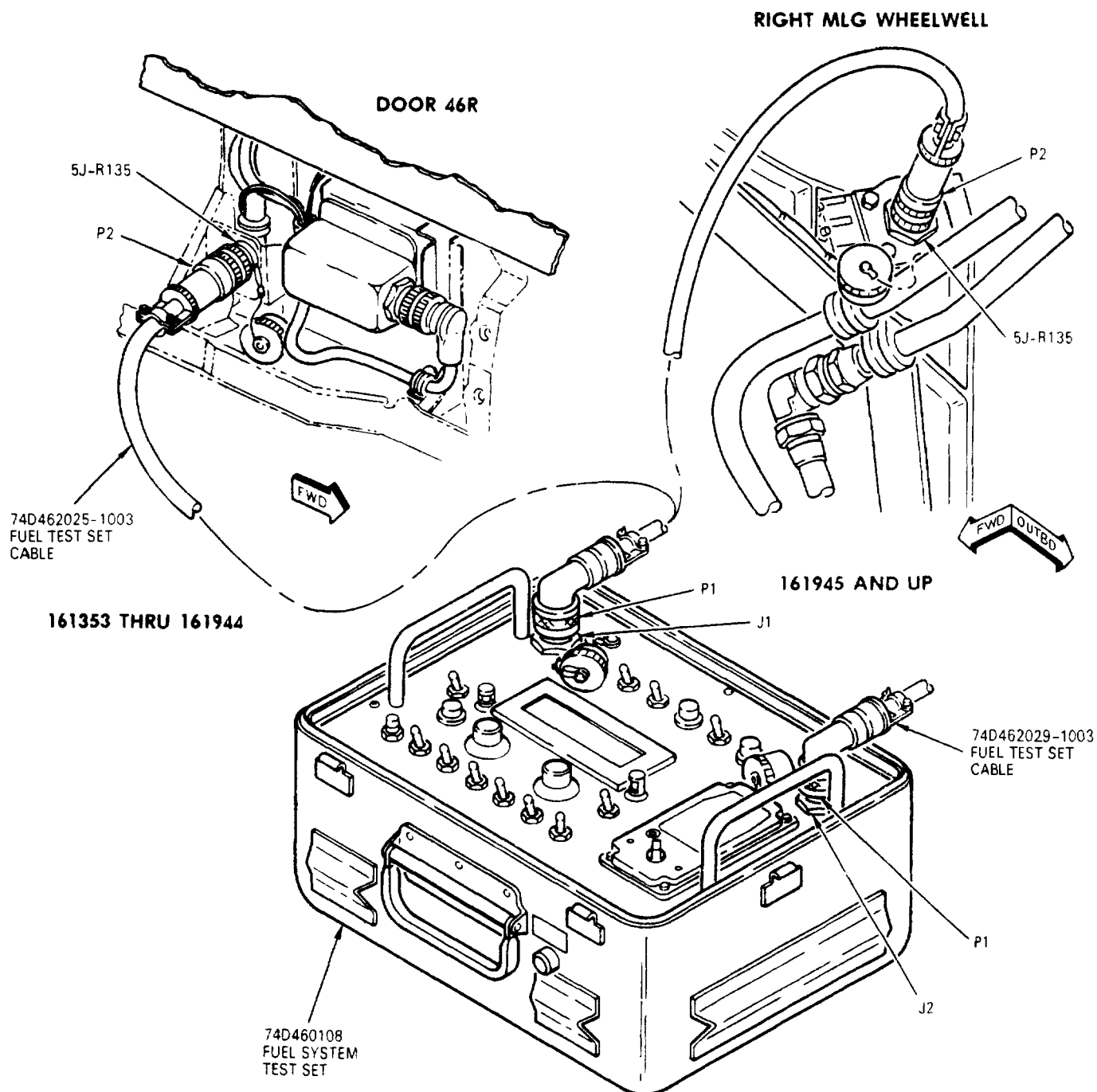
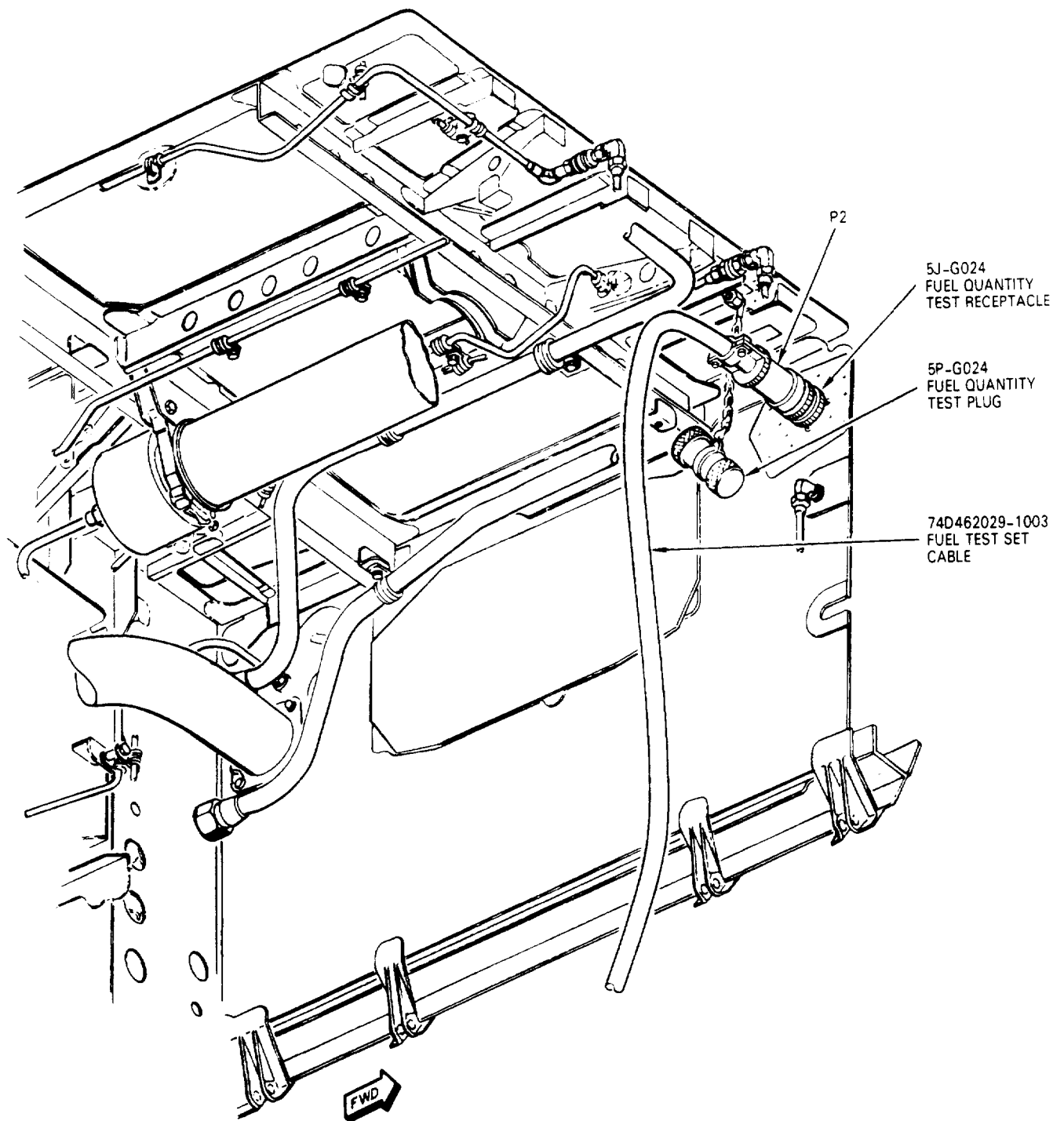


Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 1 of 2)

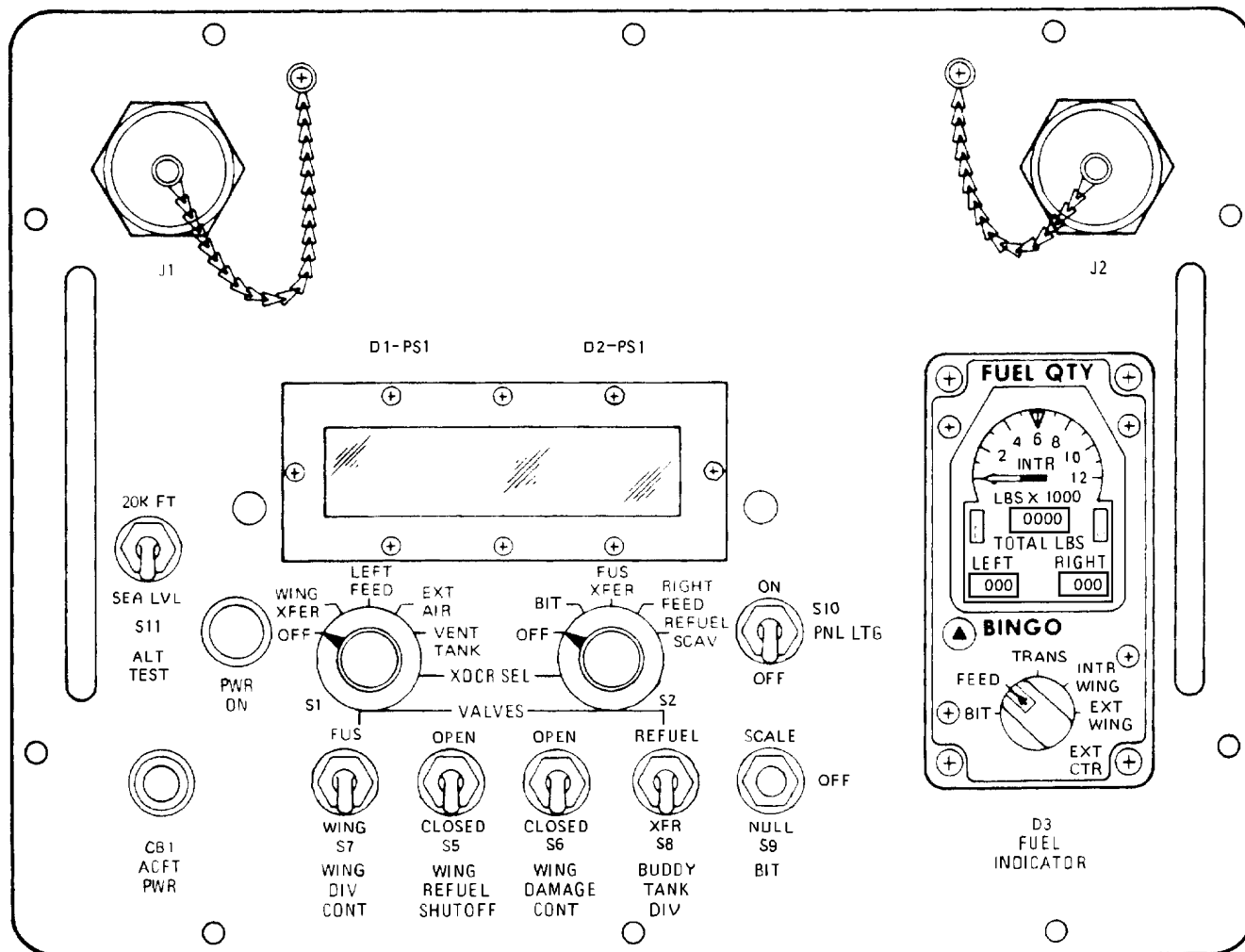
12030401



A
NOSE WHEELWELL, LEFT SIDE

**Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359
AFTER F/A-18 AFC 53 (Sheet 2)**

12030402

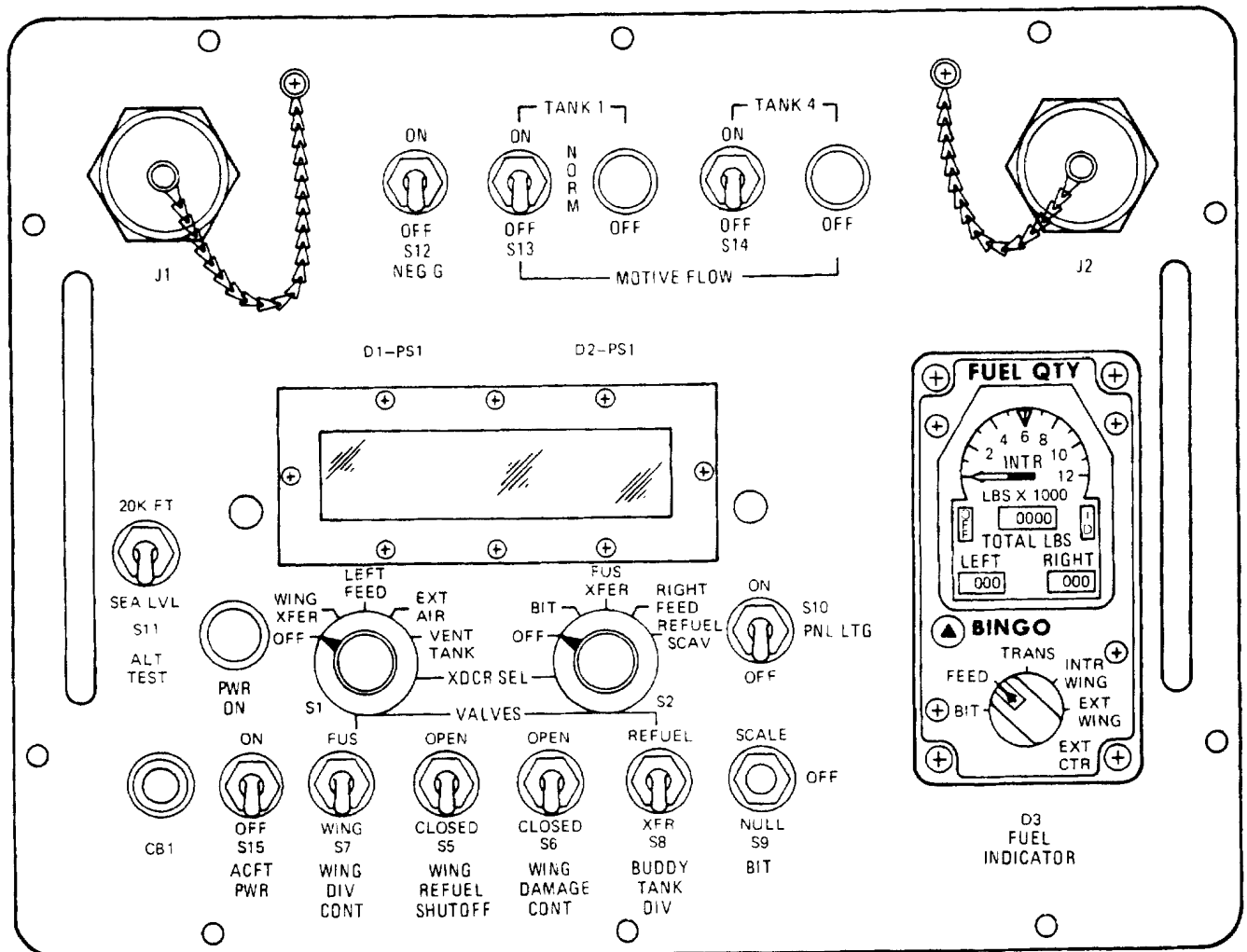


FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 5. Fuel System Test Set Controls and Displays (Sheet 1 of 2)

12030501



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 5. Fuel System Test Set Controls and Displays (Sheet 2)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
NO. 2 FUEL TANK CYCLE TEST
INTERNAL FUEL TRANSFER SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Controls and Displays, Figure 5	17
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 3	14
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 4	15
No. 2 Fuel Tank Cycle Test Component Locator, Figure 1	10
No. 2 Fuel Tank Cycle Test, Table 1	2
No. 2 Fuel Tank Cycle Test Troubleshooting Component Locator, Figure 2	11
No. 2 Fuel Tank Does Not Accept Fuel Normally, Table 2	8

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Jul 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Tanks 2 and 3 (ECP MDA-F/A-18-00077C1/C2)	1 Oct 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

Table 1. No. 2 Fuel Tank Cycle Test

Procedure	Normal Indication	Remedy for Abnormal Indication												
<p>System Required Components</p> <p>All system components installed.</p> <p>Related Systems Required</p> <p>Electrical System Hydraulic System Power Plant and Related System Secondary Power System</p> <p>Support Equipment Required</p> <p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>74D460108-1001</td><td>Fuel System Test Set</td></tr><tr><td>74D460108-1003</td><td>Fuel System Test Set</td></tr><tr><td>74D460125-1001</td><td>Special Purpose Fuel Test Set Cable</td></tr><tr><td>(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASED ONLY))</td><td></td></tr><tr><td>—</td><td>External Electrical Power Source</td></tr></table> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>Component locations are shown in figure 1.</p>			Part Number or Type Designation	Nomenclature	74D460108-1001	Fuel System Test Set	74D460108-1003	Fuel System Test Set	74D460125-1001	Special Purpose Fuel Test Set Cable	(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASED ONLY))		—	External Electrical Power Source
Part Number or Type Designation	Nomenclature													
74D460108-1001	Fuel System Test Set													
74D460108-1003	Fuel System Test Set													
74D460125-1001	Special Purpose Fuel Test Set Cable													
(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASED ONLY))														
—	External Electrical Power Source													
<p>1. PREPARATION.</p> <p>a. If required, refuel aircraft using electrical power (A1-F18AC-PCM-000) to a minimum of 3800 TOTAL LBS and a maximum of 10,000 TOTAL LBS.</p> <p>b. If refueling was required, disconnect refueling equipment (A1-F18AC-PCM-000).</p> <p>c. Turn off external electrical power (A1-F18AC-LMM-000).</p>														

Table 1. No. 2 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
d. Set cockpit controls as listed below:		
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
2. FUEL SYSTEM TEST SET HOOKUP.		
a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).		
b. Hookup fuel test set cable 74D462025-1003 per substeps below:		
(1) On fuel system test set, remove J1 protective cap (fig 3 or 4).		
(2) Connect test cable P1 to J1 on test set.		
(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).		
(4) Position test set near right wing tip.		
NOTE		
Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.		
c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		

Table 1. No. 2 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) On fuel system test set, remove J2 protective cap (fig 3).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 5).</p> <p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side) (fig 4).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 5). set switches as listed below:</p> <p>S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - OPEN D3 - FUEL INDICATOR- Selector knob to FEED</p>		

Table 1. No. 2 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>f. On 74D460108-1003 test set, set switches as listed below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - ON S14 - ON S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>i. On test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle.</p> <p>m. Release D3 FUEL INDICATOR selector knob.</p> <p>3. TRANSDUCER CHANNEL BIT. (QA)</p> <p>a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.</p> <p>b. Set switch S9 to SCALE and hold.</p> <p>c. Release switch S9.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p> <p>Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTRO LBS needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.</p> <p>Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counters return without stopping or jerking.</p> <p>D2 displays 0000 \pm00.1.</p> <p>D2 displays 25 to 35 PSI.</p>	<p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Replace test set.</p> <p>Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.</p> <p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Do table 3, WP013 02.</p>

Table 1. No. 2 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
4. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>The FUS XFER pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amount should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to FUS XFER. Record D2 display (non-nulled).		
b. Set switch S9 to NULL and release.	D2 displays 000.	Do table 2, WP036 00.
5. TEST.		
a. Prepare aircraft for engine or APU operation (A1-F18AC-LMM-000).		
<div style="border: 2px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
b. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do substeps below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Tell fire department and take required action to make area safe.		
c. Operate APU in ground maintenance mode, left AMAD only (A1-F18AC-LMM-000) or start left engine and operate at ground idle (A1-F18AC-LMM-000).		

Table 1. No. 2 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>d. On FUEL QTY indicator, monitor LEFT and RIGHT counters.</p> <p>LEFT counter - No. 2 fuel tank</p> <p>RIGHT counter - No. 3 fuel tank</p>	<p>1. RIGHT counter fuel amount does not increase.</p> <p>2. Using JP-4, LEFT counter cycles within 1360 to 1570 lb.</p> <p>Using JP-5, LEFT counter cycles within 1470 to 1690 lb.</p>	<p>Replace no. 3 fuel tank fuel transfer shutoff valve (A1-F18AC-460-300, WP112 00).</p> <p>Do table 2.</p>
<p style="text-align: center;">NOTE</p> <p>When D2 displays approximately 5 psi, the fuel transfer shutoff valve is open allowing no. 2 fuel tank to accept transfer fuel. When D2 displays approximately 50 psi, the fuel transfer shutoff valve is closed.</p>		
<p>e. On fuel system test set, monitor D2 display. Allow no. 2 fuel tank to cycle several times.</p> <p>f. Shut down engine or APU (A1-F18AC-LMM-000).</p> <p>6. FINAL.</p> <p>a. Disconnect fuel system test set.</p> <p>b. On 161353 THRU 161359 LAND BASE ONLY, do substeps below:</p> <p>(1) Connect 5P-F014B to J2 on intermediate device (door 14R).</p> <p>(2) Close door 14R (A1-F18AC-LMM-010).</p> <p>c. Close door 9 and, if applicable, door 46R (A1-F18AC-LMM-010).</p> <p>d. Refuel aircraft (A1-F18AC-PCM-000).</p>	<p>D2 display cycling between approximately 5 and 50 PSI.</p>	<p>Do table 2.</p>

Table 2. No. 2 Fuel Tank Does Not Accept Fuel Normally

Procedure	No	Yes
<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 2.</p> <p>Malfunction is caused by one of the items below:</p> <p>Aircraft Tubing No. 2 Fuel Tank Jet Level Sensor No. 2 Fuel Tank Jet Level Sensor Tube Restrictor No. 2 Fuel Tank Transfer Shutoff Valve No. 2 Fuel Tank Wash Filter</p>		
Procedure	No	Yes
a. Remove and inspect no. 2 fuel tank jet level sensor tube restrictor (A1-F18AC-460-300, WP144 01). Is tube damaged or clogged?	b	c
b. Remove and inspect fuel level sensor tube (between fuel level sensor and transfer shutoff valve) (A1-F18AC-460-300, WP020 00). Is tube damaged or clogged?	d	e
c. Replace no. 2 fuel tank jet level sensor tube restrictor (A1-F18AC-460-300, WP144 01) and do step i	-	-
d. Replace no. 2 fuel tank fuel level sensor (A1-F18AC-460-300, WP019 00) and no. 2 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP108 00). Repeat no. 2 fuel tank cycle test. Did no. 2 fuel tank cycle normally?	f	i
e. Replace no. 2 fuel tank fuel level sensor tube (A1-F18AC-460-300, WP020 00) and do step i	-	-
f. Get access to no. 2 fuel tank wash filter (A1-F18AC-460-300, WP131 00). Remove and inspect wash filter tube (between wash filter and fuel level sensor tube restrictor) (A1-F18AC-460-300, WP020 00). Is tube damaged or clogged?	g	h
g. Replace no. 2 fuel tank wash filter (A1-F18AC-460-300, WP131 00) and do step i	-	-
h. Replace wash filter tube (A1-F18AC-460-300, WP020 00) and do step i	-	-
i. If removed during this procedure, make sure the items below are installed:		

Table 2. No. 2 Fuel Tank Does Not Accept Fuel Normally (Continued)

Procedure	No	Yes
(1) No. 2 fuel tank jet level sensor tube restrictor		
(2) Fuel level sensor tube		
(3) Wash filter tube	-	-

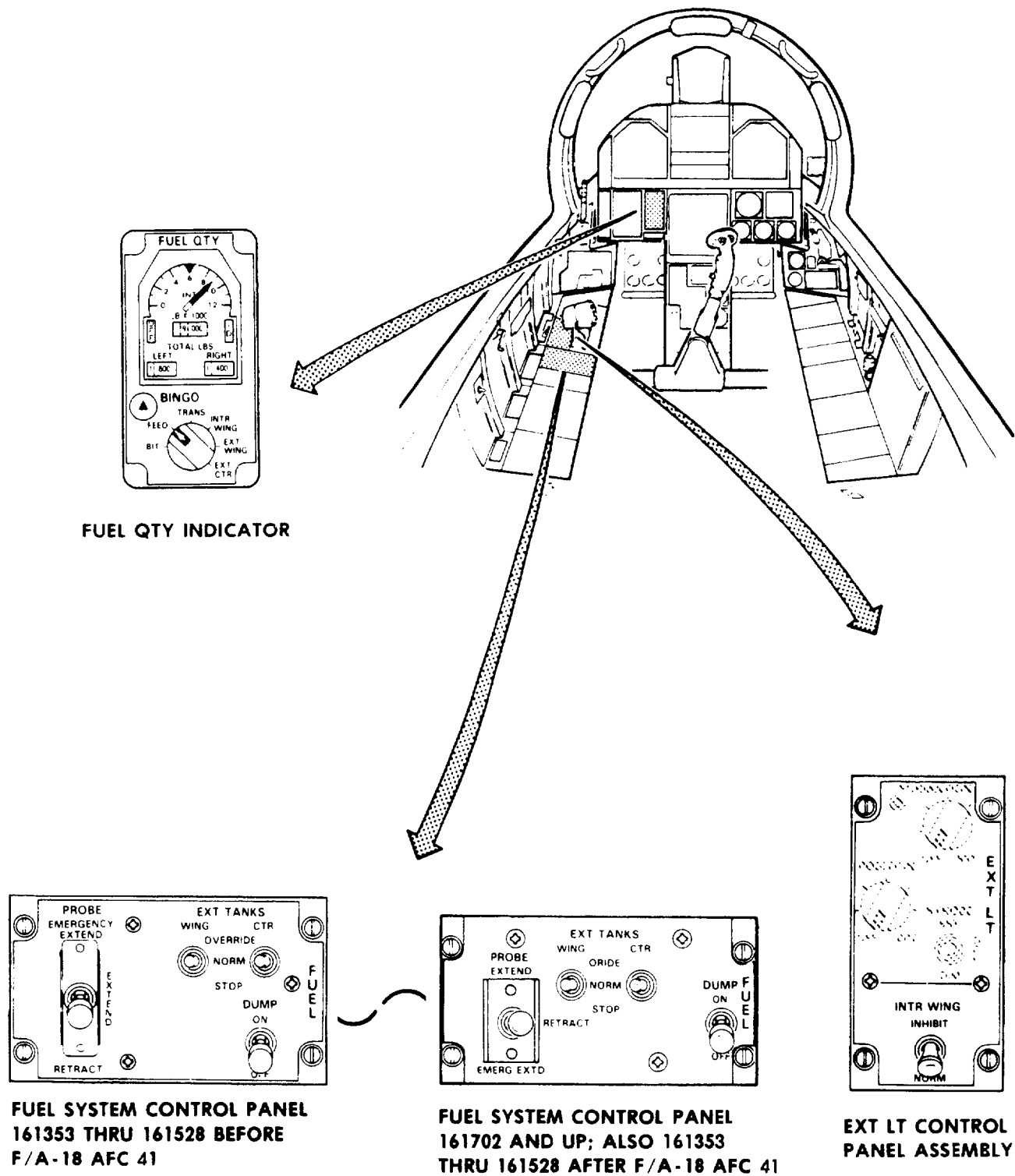
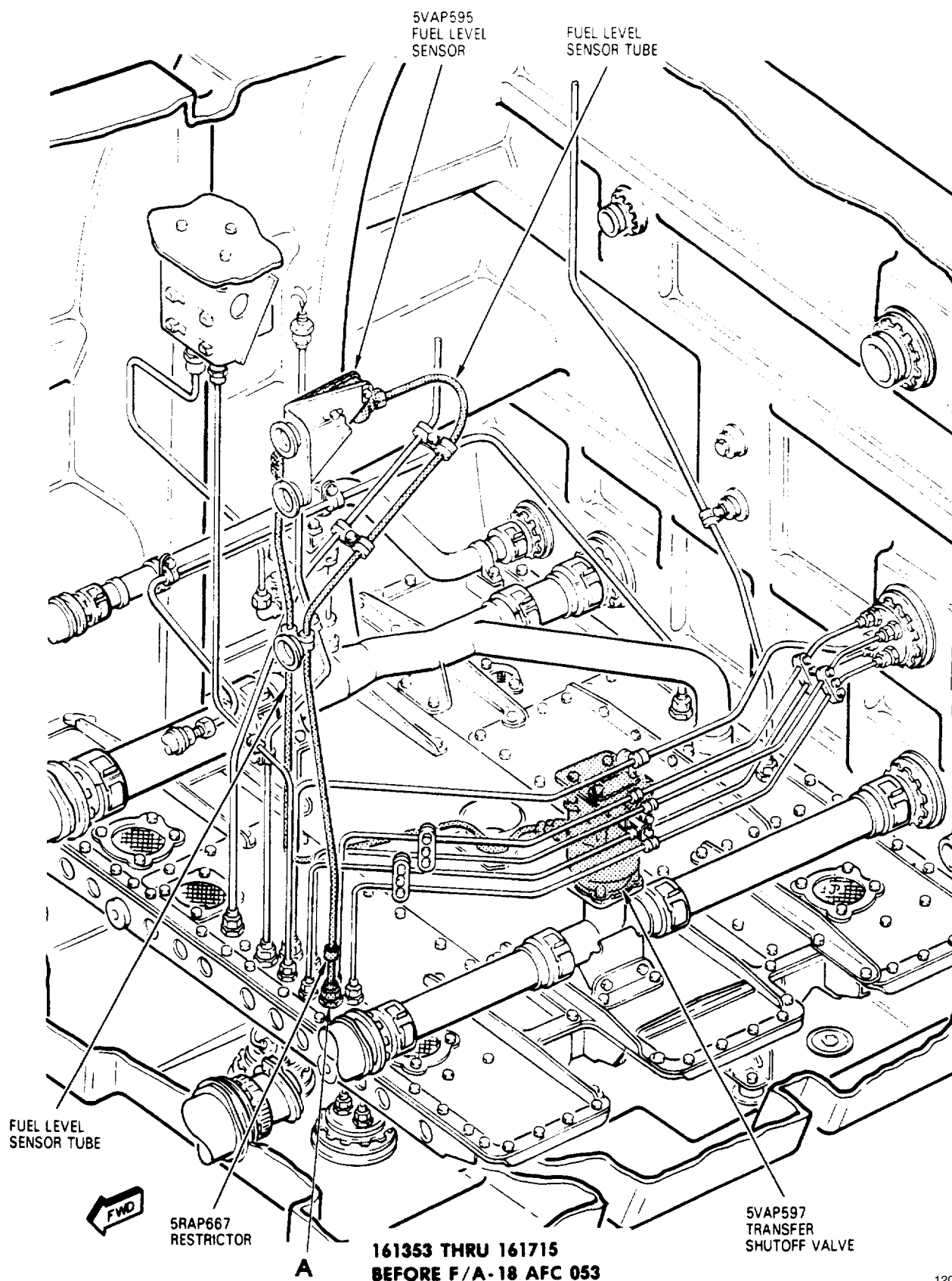
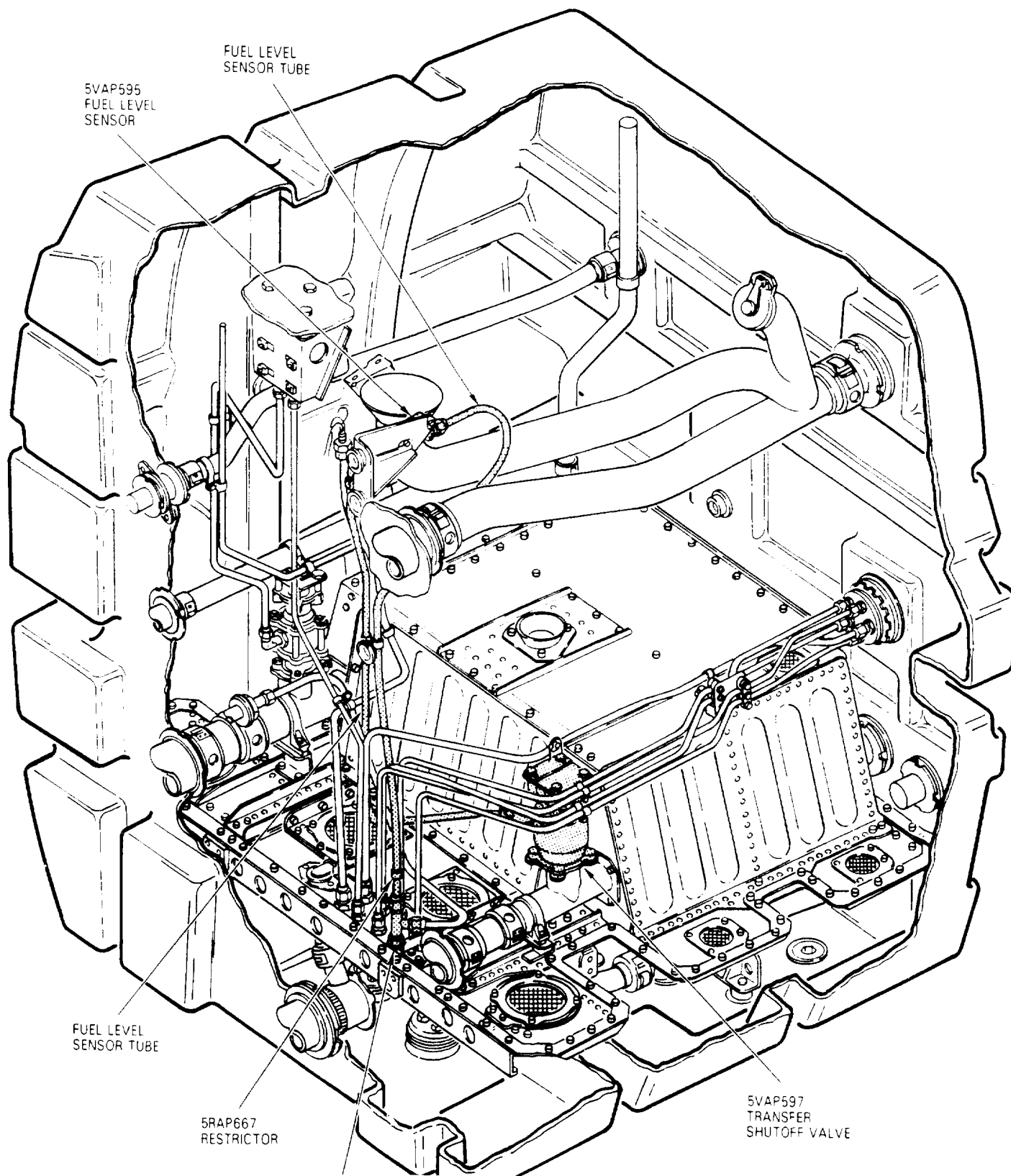


Figure 1. No. 2 Fuel Tank Cycle Test Component Locator



12040201

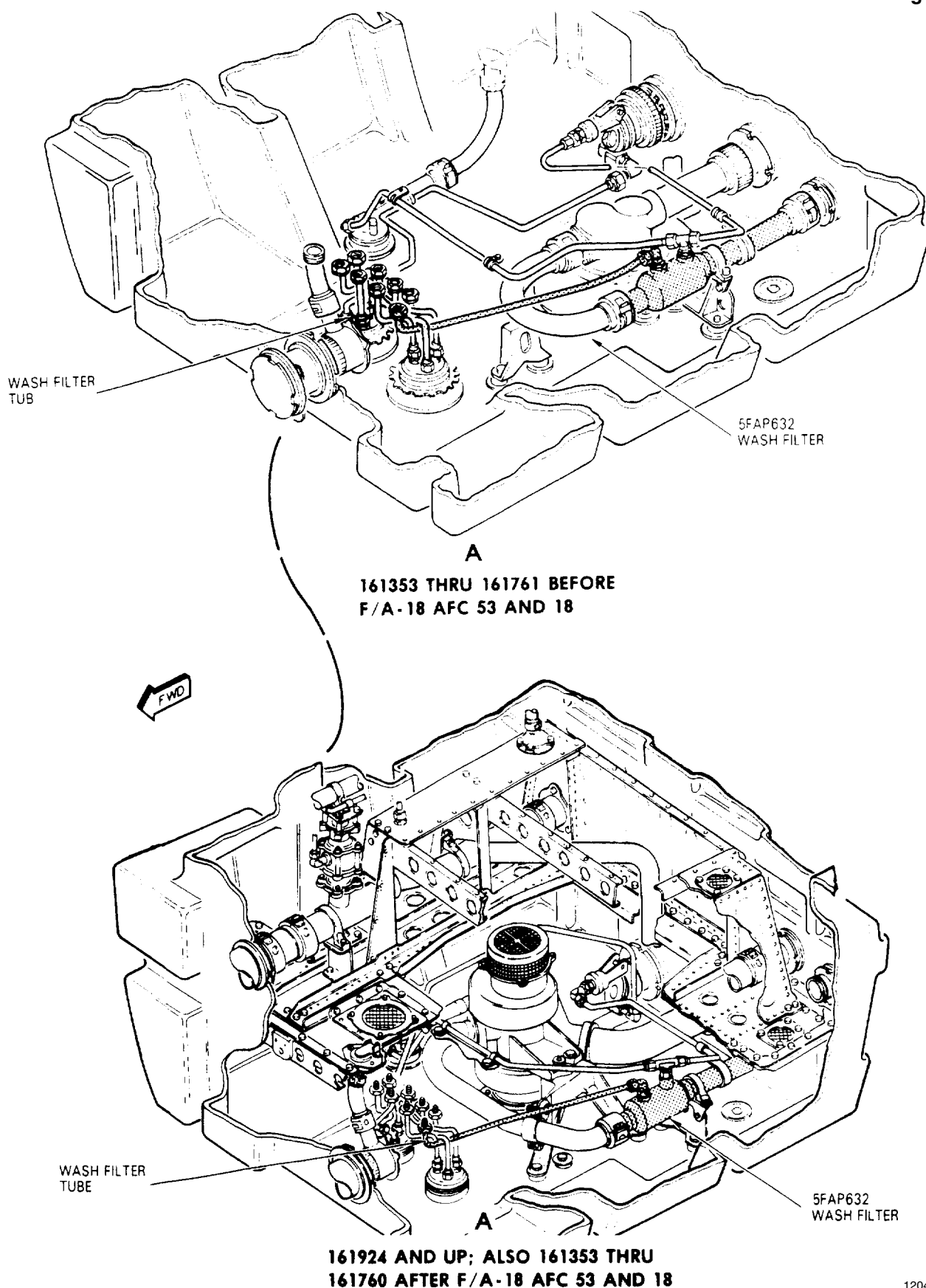
Figure 2. No. 2 Fuel Tank Cycle Test Troubleshooting Component Locator
(Sheet 1 of 3)



A 161716 AND UP; ALSO 161353 THRU
161715 AFTER F/A-18 AFC 53

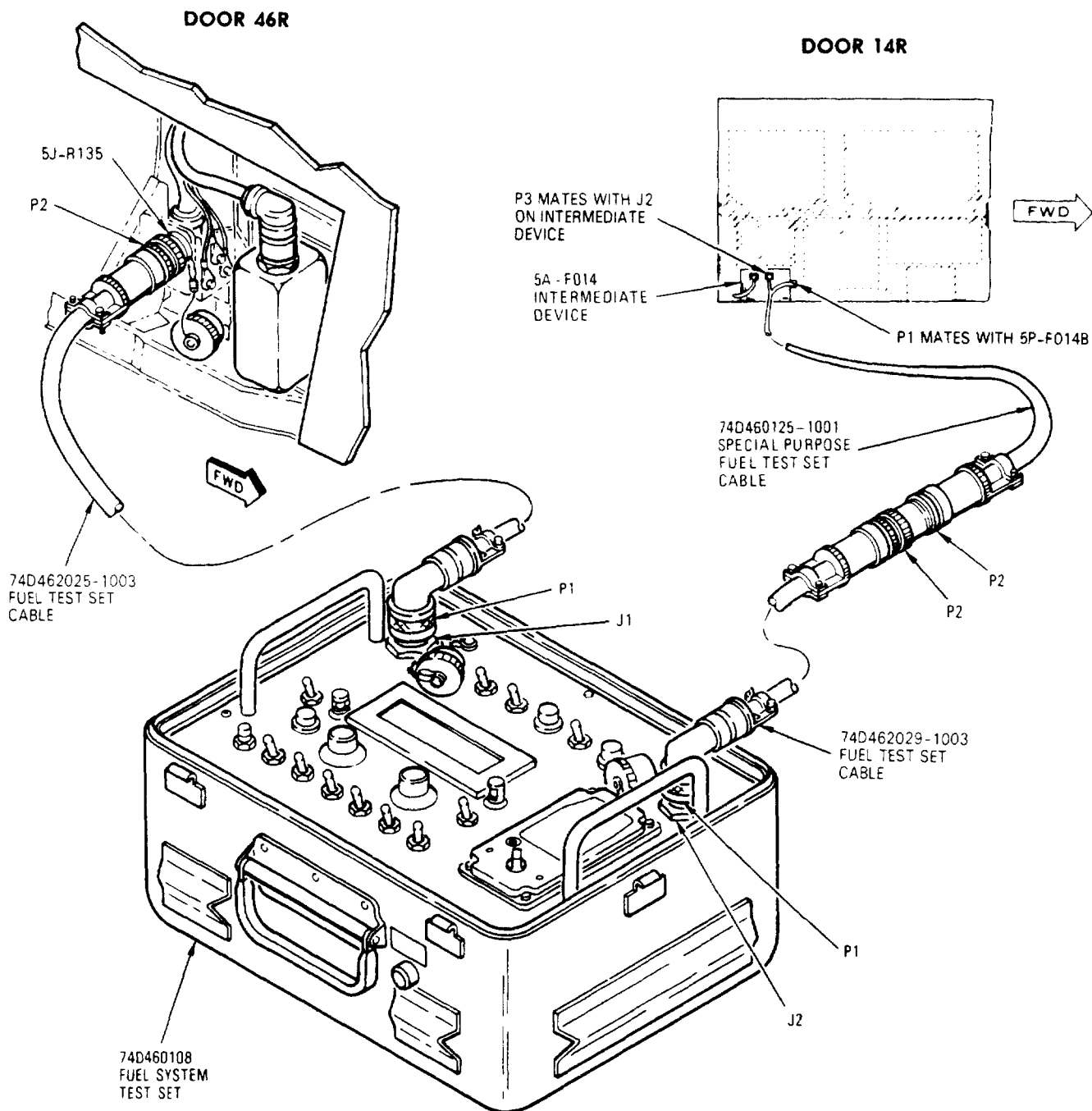
12040202

**Figure 2. No. 2 Fuel Tank Cycle Test Troubleshooting Component Locator
(Sheet 2)**



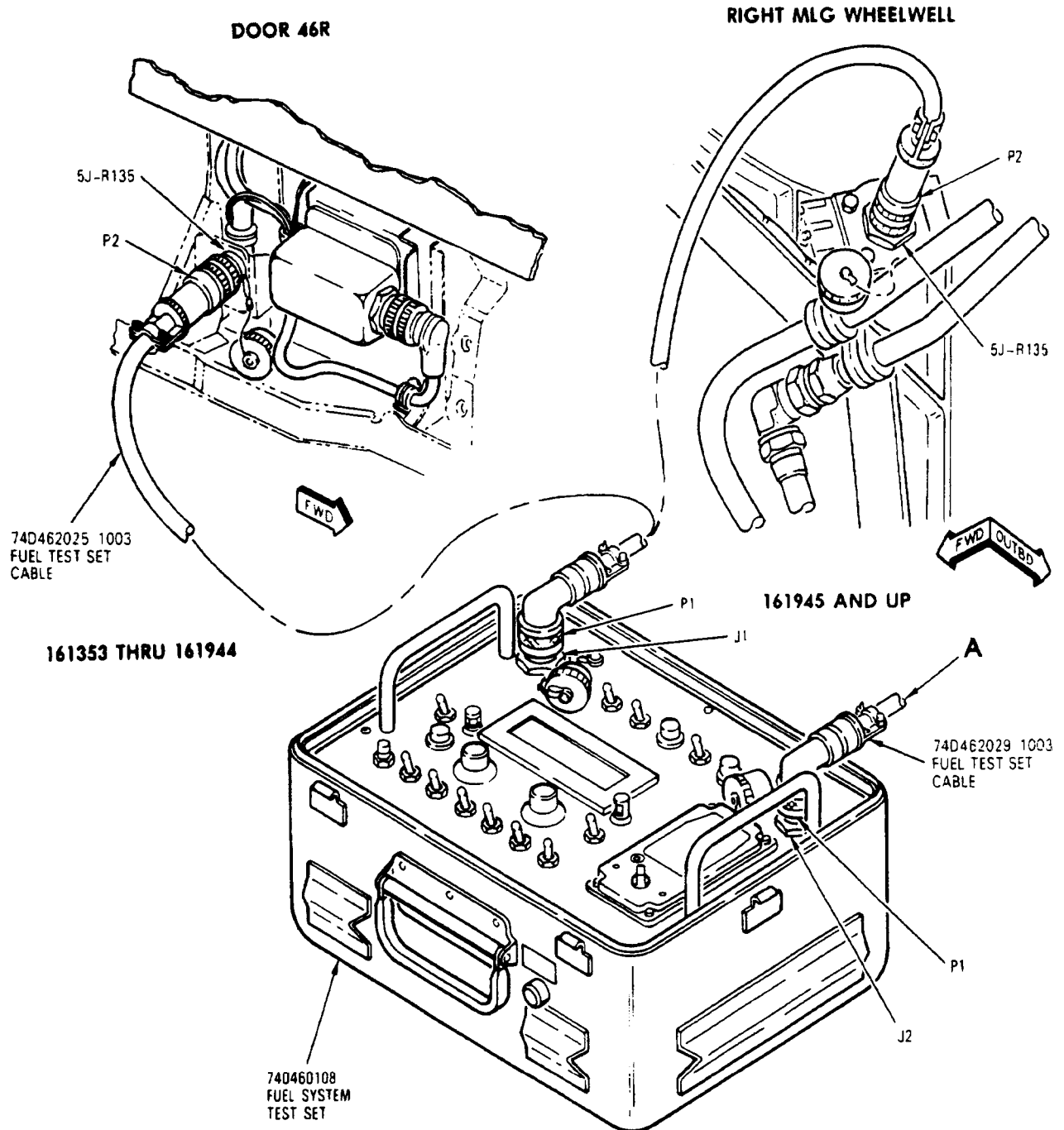
12040203

Figure 2. No. 2 Fuel Tank Cycle Test Troubleshooting Component Locator (Sheet 3)



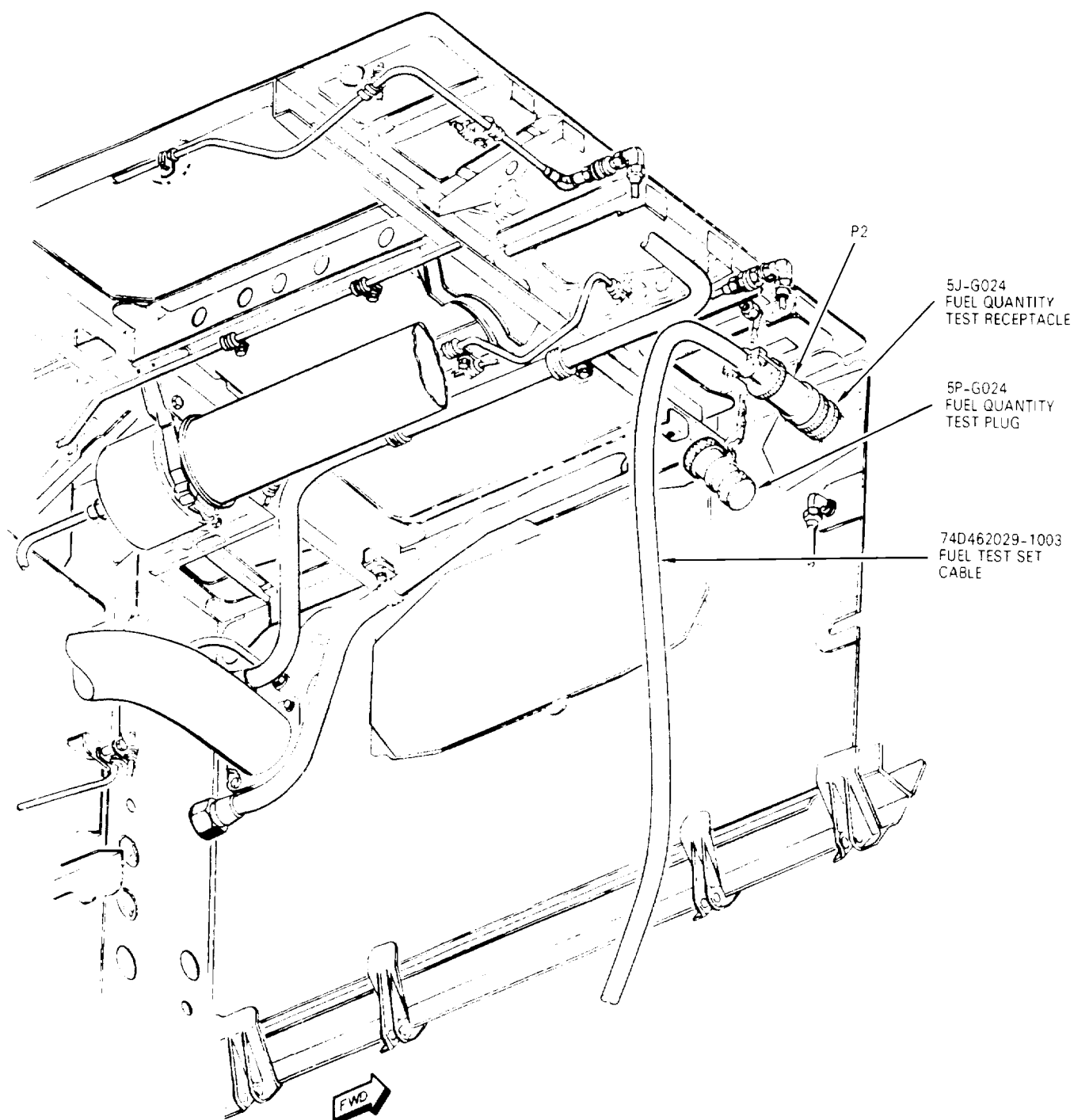
01204003

Figure 3. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53



12040401

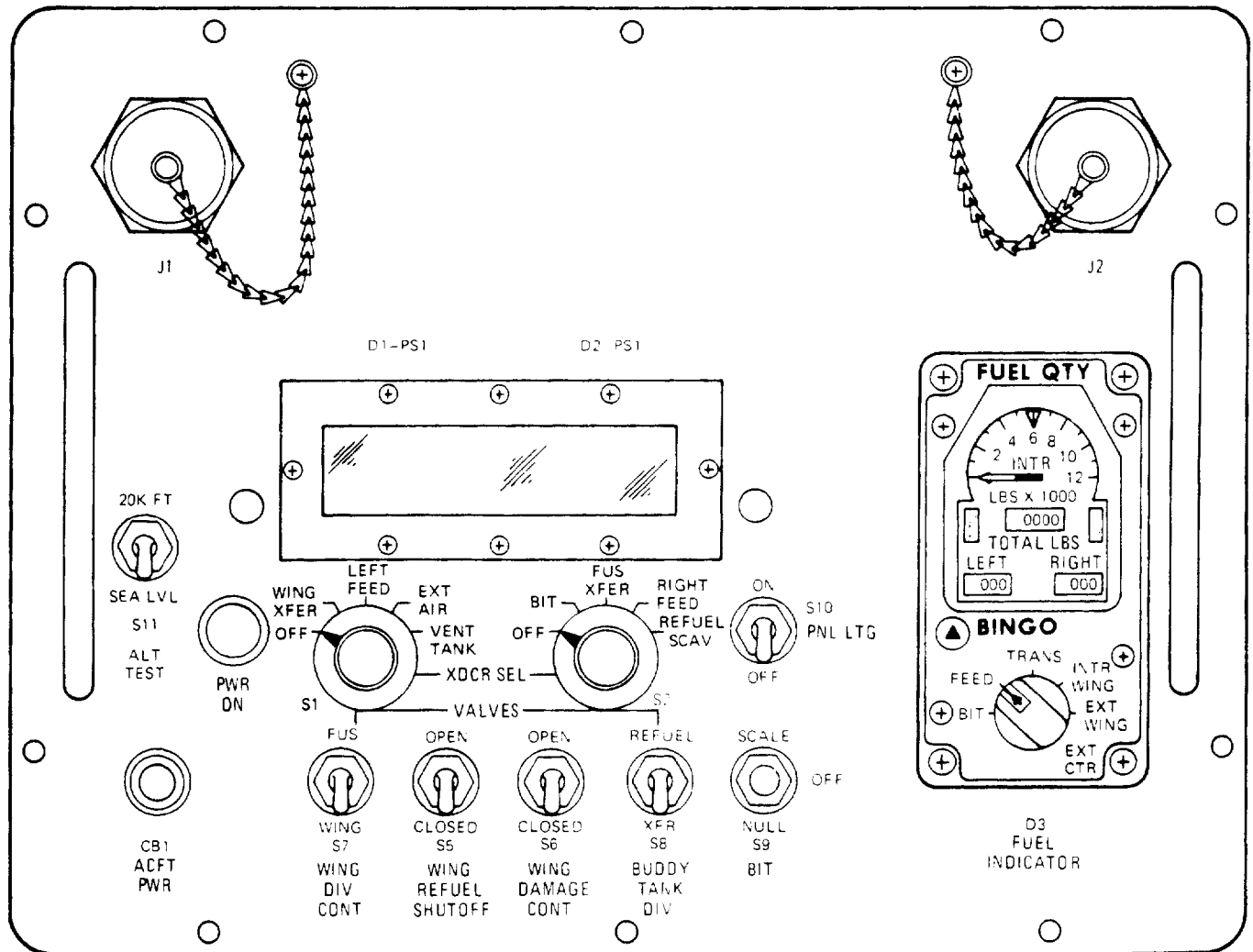
Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 1 of 2)



A
NOSE WHEELWELL, LEFT SIDE

12040402

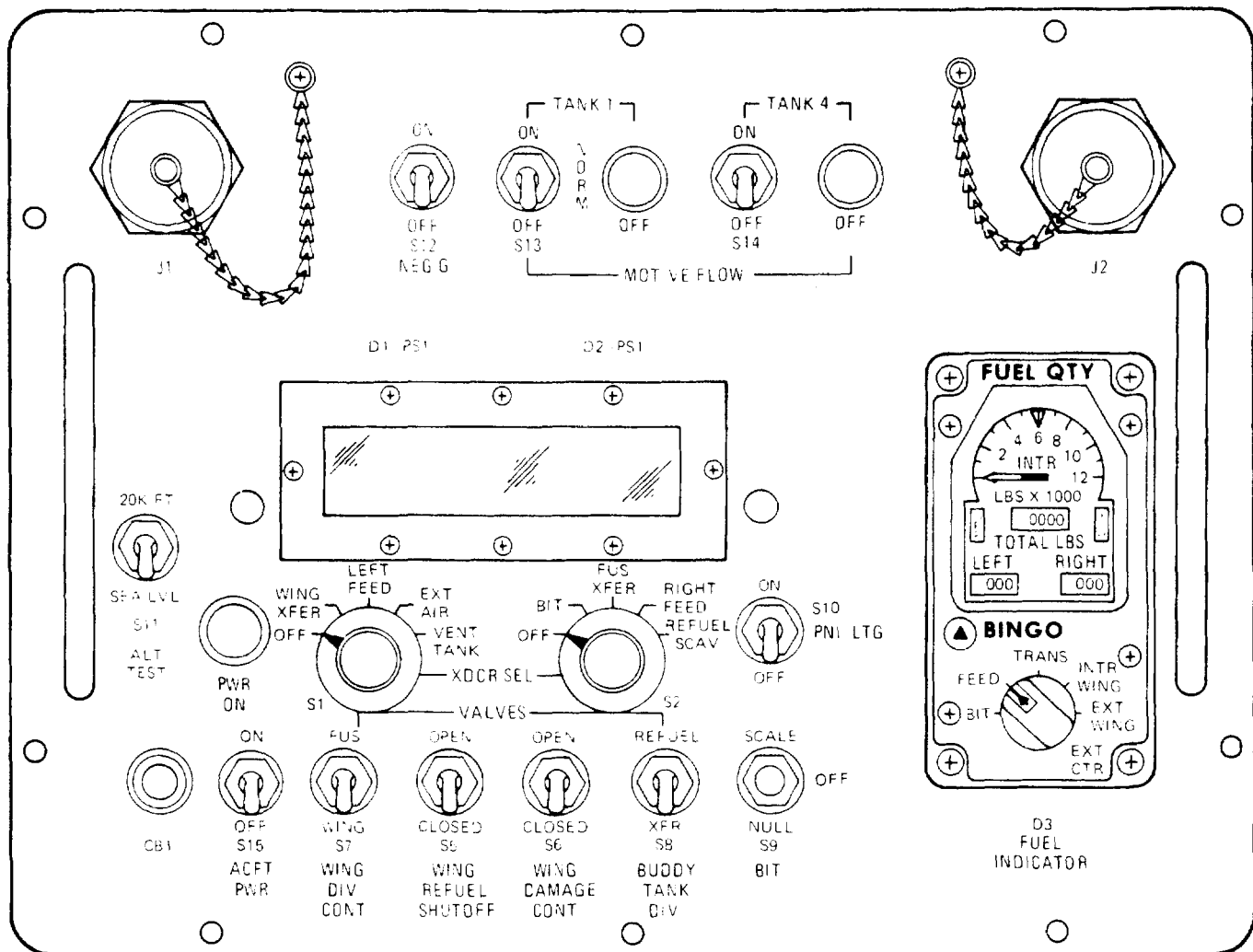
Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359
AFTER F/A-18 AFC 53 (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 5. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 5. Fuel System Test Set Controls and Displays (Sheet 2)

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
NO. 3 FUEL TANK CYCLE TEST
INTERNAL FUEL TRANSFER SYSTEM**

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
 Line Maintenance Procedures A1-F18AC-LMM-000
 Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Controls and Displays, Figure 5	17
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 3	14
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 4	15
No. 3 Fuel Tank Cycle Test Component Locator, Figure 1	10
No. 3 Fuel Tank Cycle Test, Table 1	1
No. 3 Fuel Tank Cycle Test Troubleshooting Component Locator, Figure 2	11
No. 3 Fuel Tank Does Not Accept Fuel Normally, Table 2	8

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Jul 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Tanks 2 and 3 (ECP MDA-F/A-18-00077C1/C2)	1 Oct 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

Table 1. No. 3 Fuel Tank Cycle Test

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">System Required Components</p> <p style="text-align: center;">All system components installed.</p> <p style="text-align: center;">Related Systems Required</p> <p style="text-align: center;">Electrical System Hydraulic System Power Plant and Related System Secondary Power System</p>		

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation		Nomenclature
74D460108-1001		Fuel System Test Set
74D460108-1003		Fuel System Test Set
74D460125-1001		Special Purpose Fuel
(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))		Test Set Cable
—		External Electrical Power Source
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
Component locations are shown in figure 1.		
1. PREPARATION.		
a. If required, refuel aircraft using electrical power (A1-F18AC-LMM-000) to a minimum of 3800 TOTAL LBS and a maximum of 10,000 TOTAL LBS.		
b. If refueling was required, disconnect refueling equipment (A1-F18AC-PCM-000).		
c. Turn off external electrical power (A1-F18AC-LMM-000).		
d. Set cockpit controls as listed:		

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
<p>2. FUEL SYSTEM TEST SET HOOKUP.</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 3).</p> <p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p> <p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.</p> <p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per substeps below:</p>		

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 3).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 4).</p> <p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 5), set switches as listed below:</p>		

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICATOR- Selector knob to FEED</p> <p>f. On 74D460108-1003 test set, set switches as listed below:</p> <p>S12 - OFF S13 - NORM S14 - ON S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>i. On test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>l. Set and hold D3 FUEL INDI- CATOR selector knob to BIT and ob- serve counters and needle.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p> <p>Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTR needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.</p>	<p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Replace test set.</p> <p>Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.</p>

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
m. Release D3 FUEL INDICATOR selector knob.	Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counter return without stopping or jerking.	Replace test set.
3. TRANSDUCER CHANNEL BIT. (QA)		
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 3, WP013 02.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 3, WP013 02.
c. Release switch S9.		
4. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>The FUS XFER pressure transducer is monitored for this test. If a transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to FUS XFER. Record D2 display (non-nulled).		
b. Set switch S9 to NULL and release.	D2 displays 000.	Do table 2, WP036 00.
5. TEST.		
a. Prepare aircraft for engine or APU operation (A1-F18AC-LMM-000).		

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: 150px;"> WARNING </div> <p style="text-align: center;">To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
<p>b. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do substeps below:</p> <p style="padding-left: 40px;">(1) Shut down APU or engine (A1-F18AC-LMM-000).</p> <p style="padding-left: 40px;">(2) Tell fire department and take required action to make area safe.</p> <p>c. Operate APU in ground maintenance mode, right AMAD only (A1-F18AC-LMM-000) or operate right engine at ground IDLE (A1-F18AC-LMM-000).</p> <p>d. On FUEL QTY indicator, monitor LEFT and RIGHT counters.</p> <p>LEFT counter - No. 2 fuel tank</p> <p>RIGHT counter - No. 3 fuel tank</p>	<p>1. LEFT counter fuel amount does not increase.</p> <p>2. Using JP-4, RIGHT counter cycles within 1070 to 1225 lb.</p> <p>3. Using JP-5, RIGHT counter cycles within 1150 to 1320 lb.</p>	<p>1. Replace tank 2 fuel transfer shutoff valve (A1-F18AC-460-300, WP108 00).</p> <p>2. Do table 2.</p>
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">When D2 displays approximately 5 psi, the fuel transfer shutoff valve is open allowing no. 3 fuel tank to accept transfer fuel. When D2 displays approximately 50 psi, the fuel transfer shutoff valve is closed.</p>		
<p>e. On fuel system test set, monitor D2 display. Allow no. 3 fuel tank to cycle several times.</p> <p>f. Shut down engine or APU (A1-F18AC-LMM-000).</p>	<p>D2 display cycling approximately 5 and 50 PSI.</p>	<p>Do table 2.</p>

Table 1. No. 3 Fuel Tank Cycle Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>6. FINAL.</p> <p>a. Disconnect fuel system test set.</p> <p>b. On 161353 THRU 161359 land base only, do substeps below:</p> <p>(1) Connect 5P-F014B to J2 on intermediate device (door 14R).</p> <p>(2) Close door 14R (A1-F18AC-LMM-010).</p> <p>c. Close door 9 and, if applicable, door 46R (A1-F18AC-LMM-010).</p> <p>d. Refuel aircraft (A1-F18AC-PCM-000).</p>		

Table 2. No. 3 Fuel Tank Does Not Accept Fuel Normally

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 2.</p> <p>Malfunction is caused by one of the items below:</p> <p>Aircraft Tubing</p> <p>No. 3 Fuel Tank Jet Level Sensor</p> <p>No. 3 Fuel Tank Jet Level Sensor Tube Restrictor</p> <p>No. 3 Fuel Tank Transfer Shutoff Valve</p> <p>No. 3 Fuel Tank Wash Filter</p>
--

Table 2. No. 3 Fuel Tank Does Not Accept Fuel Normally (Continued)

Procedure	No	Yes
a. Remove and inspect no. 3 fuel tank jet level sensor tube restrictor (A1-F18AC-460-300, WP144 01). Is tube damaged or clogged?	b	c
b. Remove and inspect fuel level sensor tube (between fuel level sensor and transfer shutoff valve) (A1-F18AC-460-300, WP024 00). Is tube damaged or clogged?	d	e
c. Replace no. 3 fuel tank jet level sensor tube restrictor (A1-F18AC-460-300, WP144 01) and do step i	-	-
d. Replace no. 3 fuel tank fuel level sensor (A1-F18AC-460-300, WP113 00) and no. 3 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP112 00). Repeat no. 3 fuel tank cycle test. Did no. 3 fuel tank cycle normally?	f	i
e. Replace no. 3 fuel tank fuel level sensor tube (A1-F18AC-460-300, WP024 00) and do step i	-	-
f. Get access to no. 3 fuel tank wash filter (A1-F18AC-460-300, WP132 00). Remove and inspect wash filter tube (between wash filter and fuel level sensor tube restrictor (A1-F18AC-460-300, WP024 00). Is tube damaged or clogged?	g	h
g. Replace no. 3 fuel tank wash filter (A1-F18AC-460-300, WP132 00) and do step i	-	-
h. Replace wash filter tube (A1-F18AC-460-300, WP024 00) and do step i	-	-
i. If removed during this procedure, make sure the items below are installed:		
(1) No. 3 fuel tank jet level sensor tube restrictor		
(2) Fuel level sensor tube		
(3) Wash filter tube	-	-

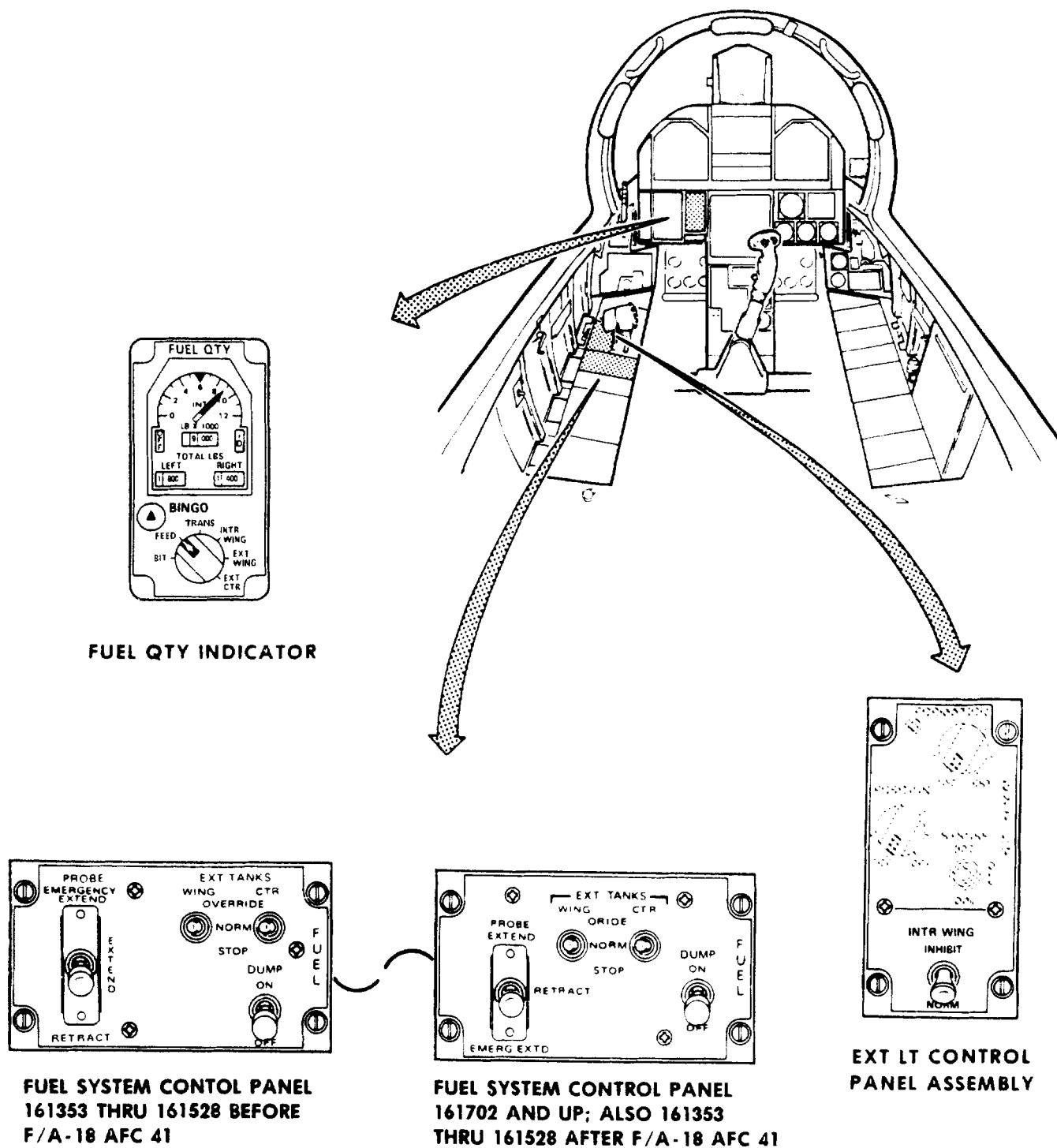
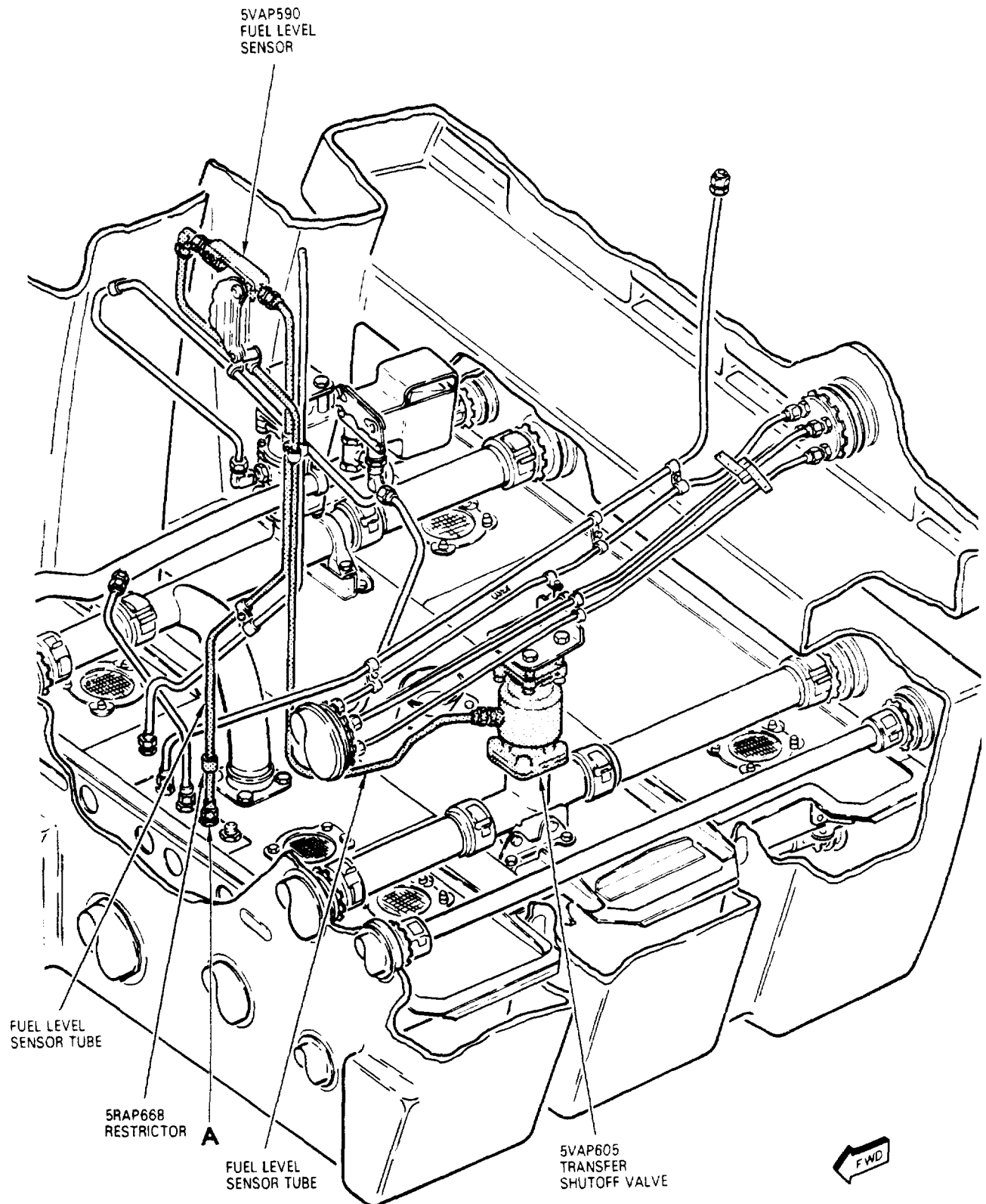


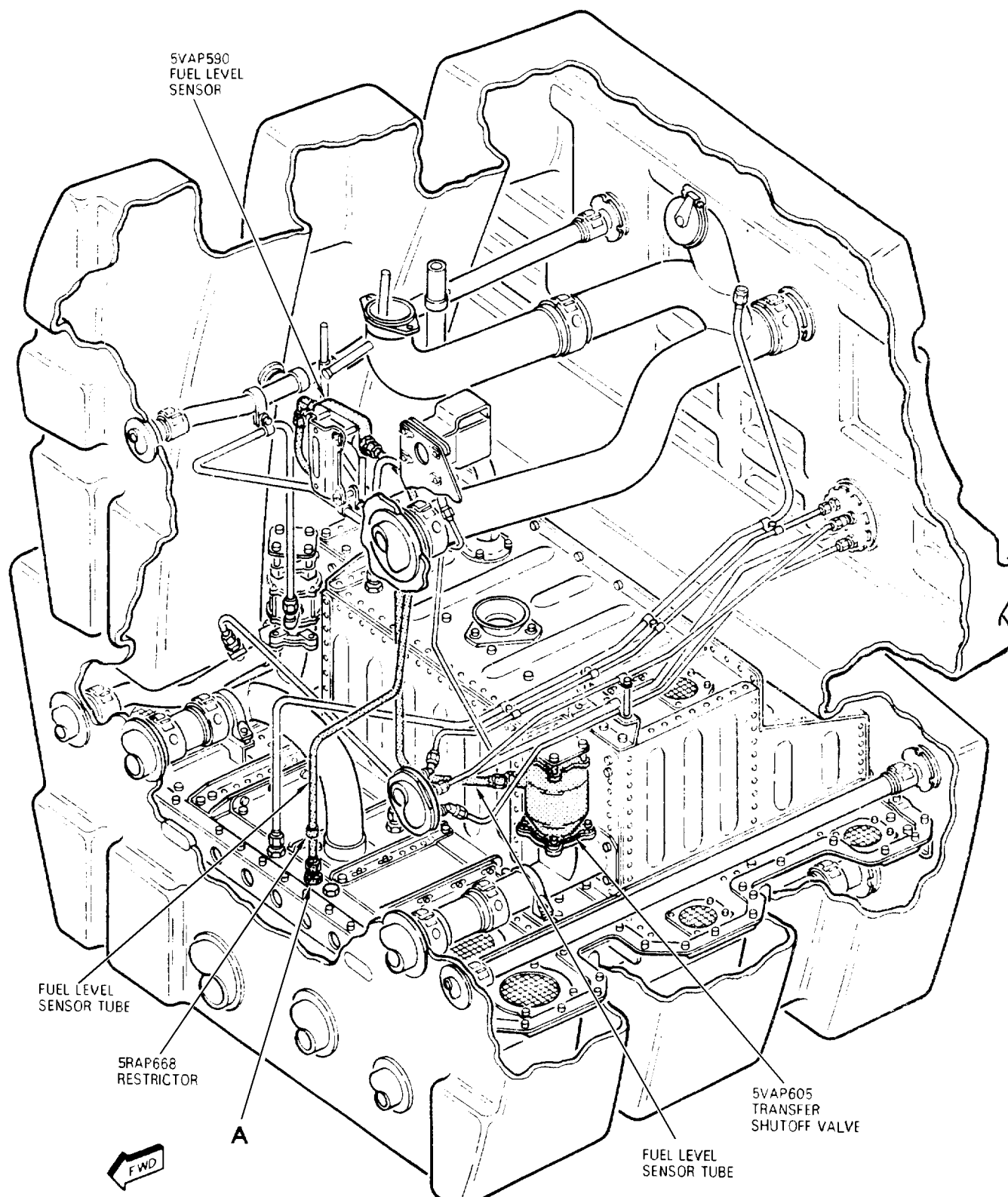
Figure 1. No. 3 Fuel Tank Cycle Test Component Locator



161353 THRU 161715
BEFORE F/A-18 AFC 053

12050201

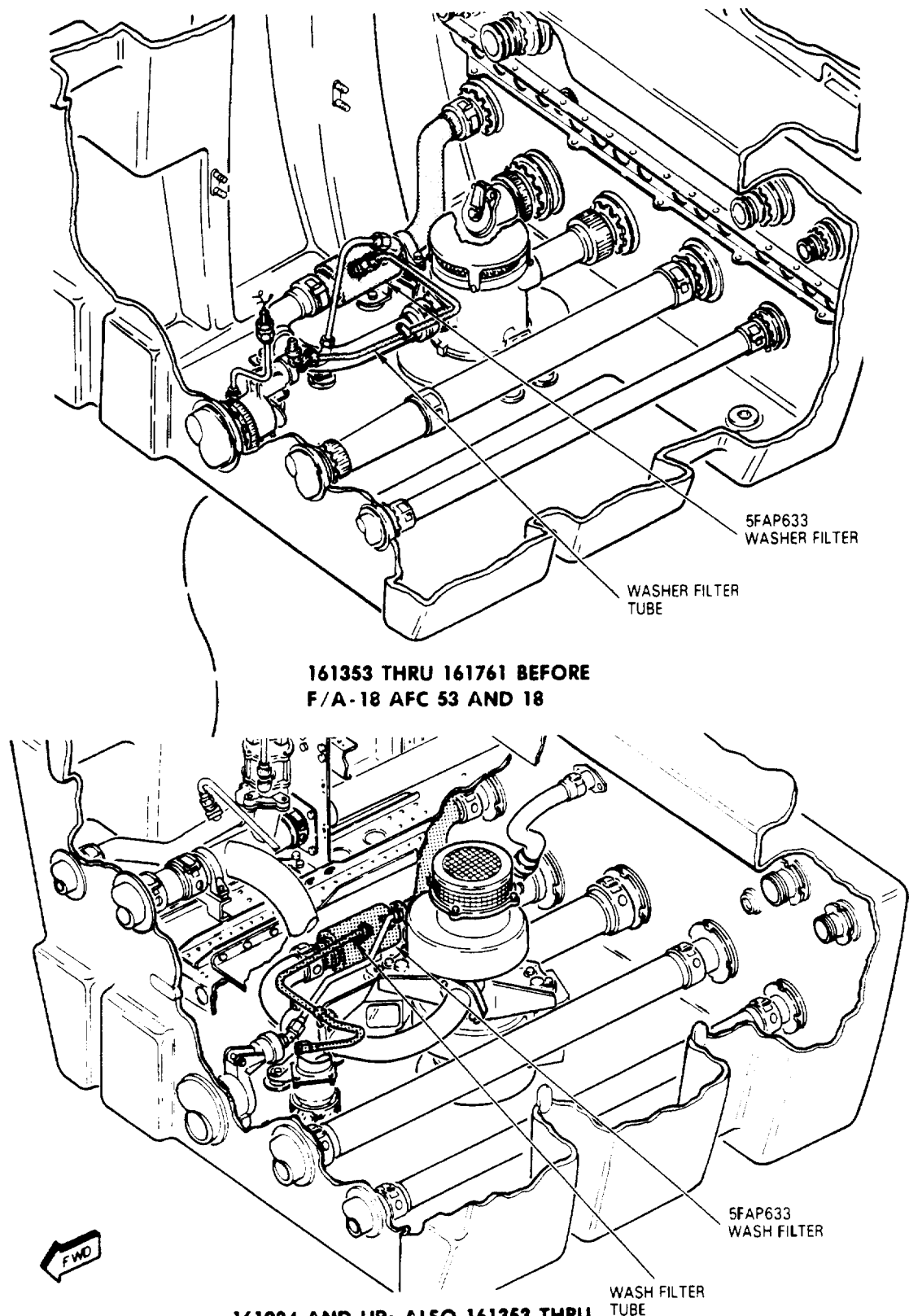
Figure 2. No. 3 Fuel Tank Cycle Test Troubleshooting Component Locator (Sheet 1 of 3)



161716 AND UP; ALSO 161353 THRU
161715 AFTER F/A-18 AFC 53

12050202

**Figure 2. No. 3 Fuel Tank Cycle Test Troubleshooting
Component Locator (Sheet 2)**

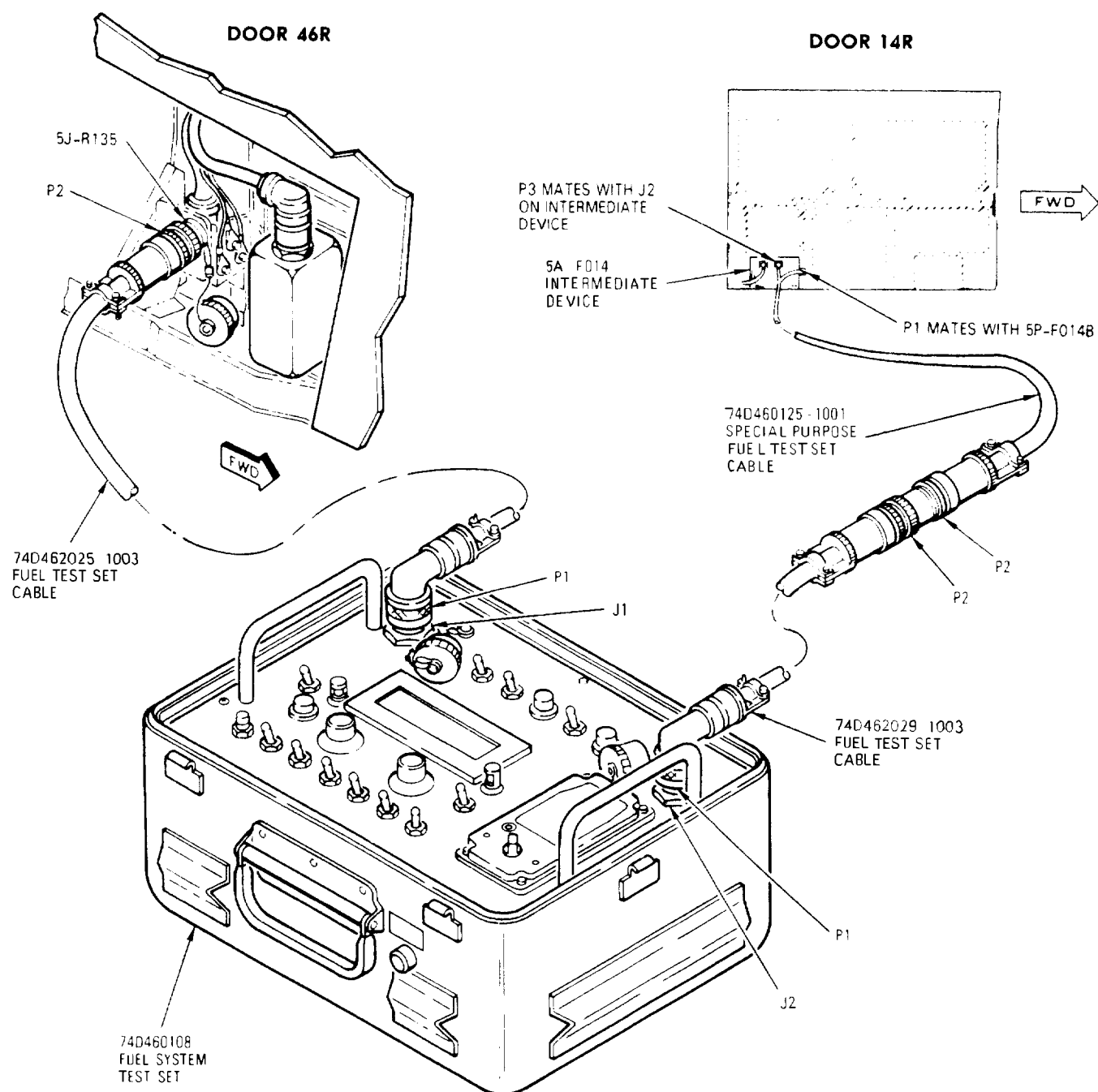


161924 AND UP; ALSO 161353 THRU
161760 AFTER F/A-18 AFC 53 AND 18

A

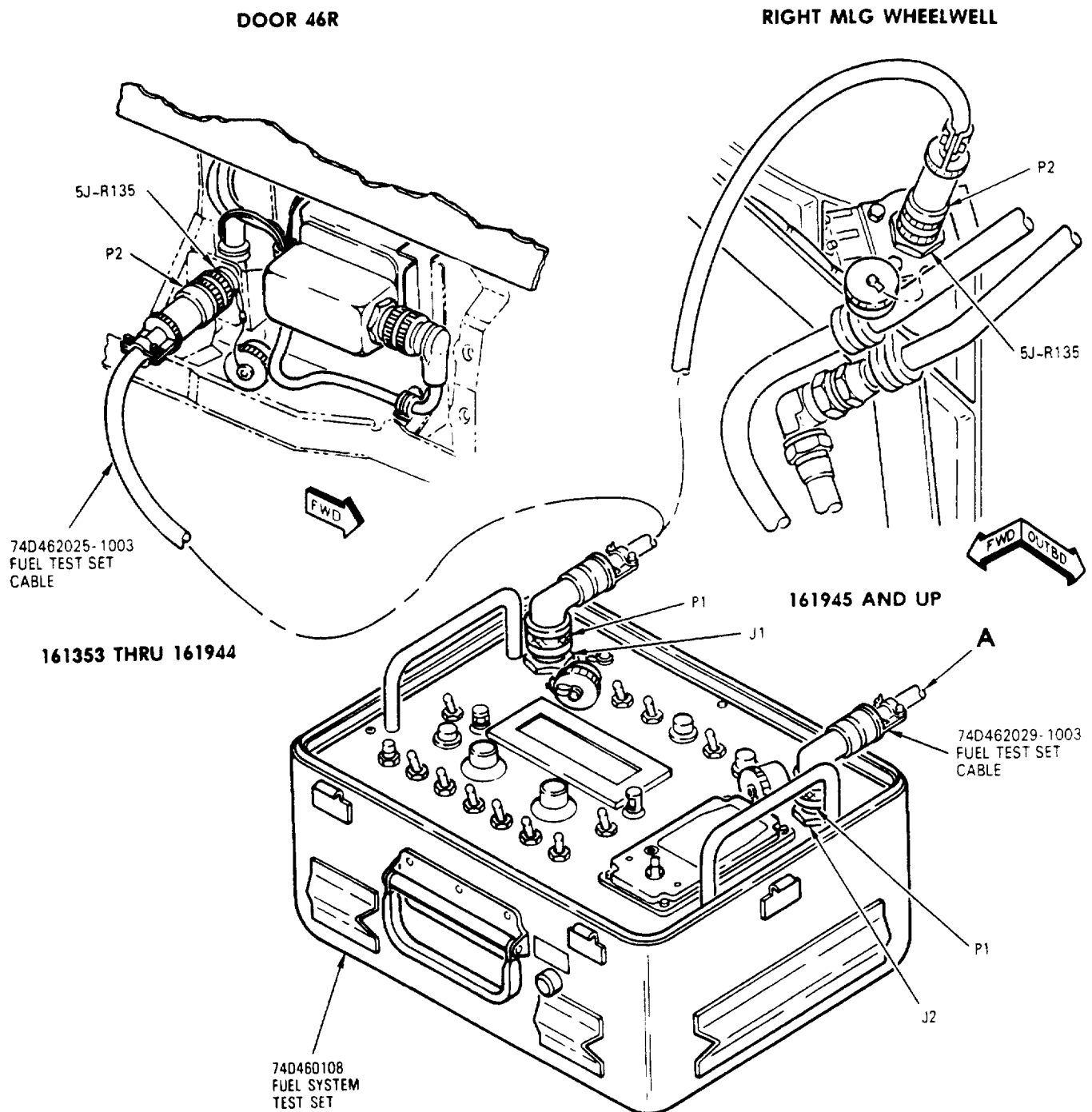
12050203

Figure 2. No. 3 Fuel Tank Cycle Test Troubleshooting
Component Locator (Sheet 3)



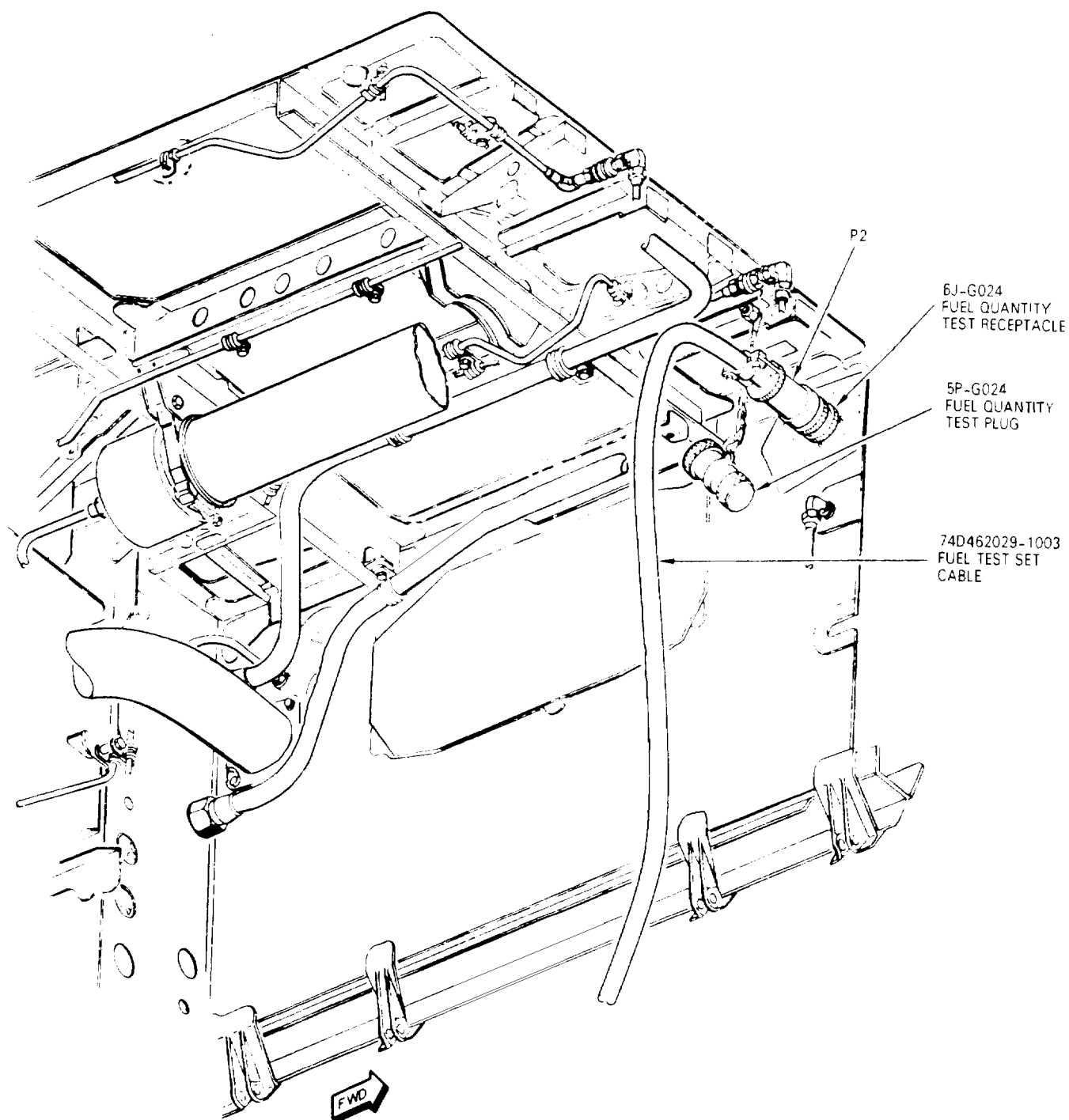
01205003

Figure 3. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53



12050401

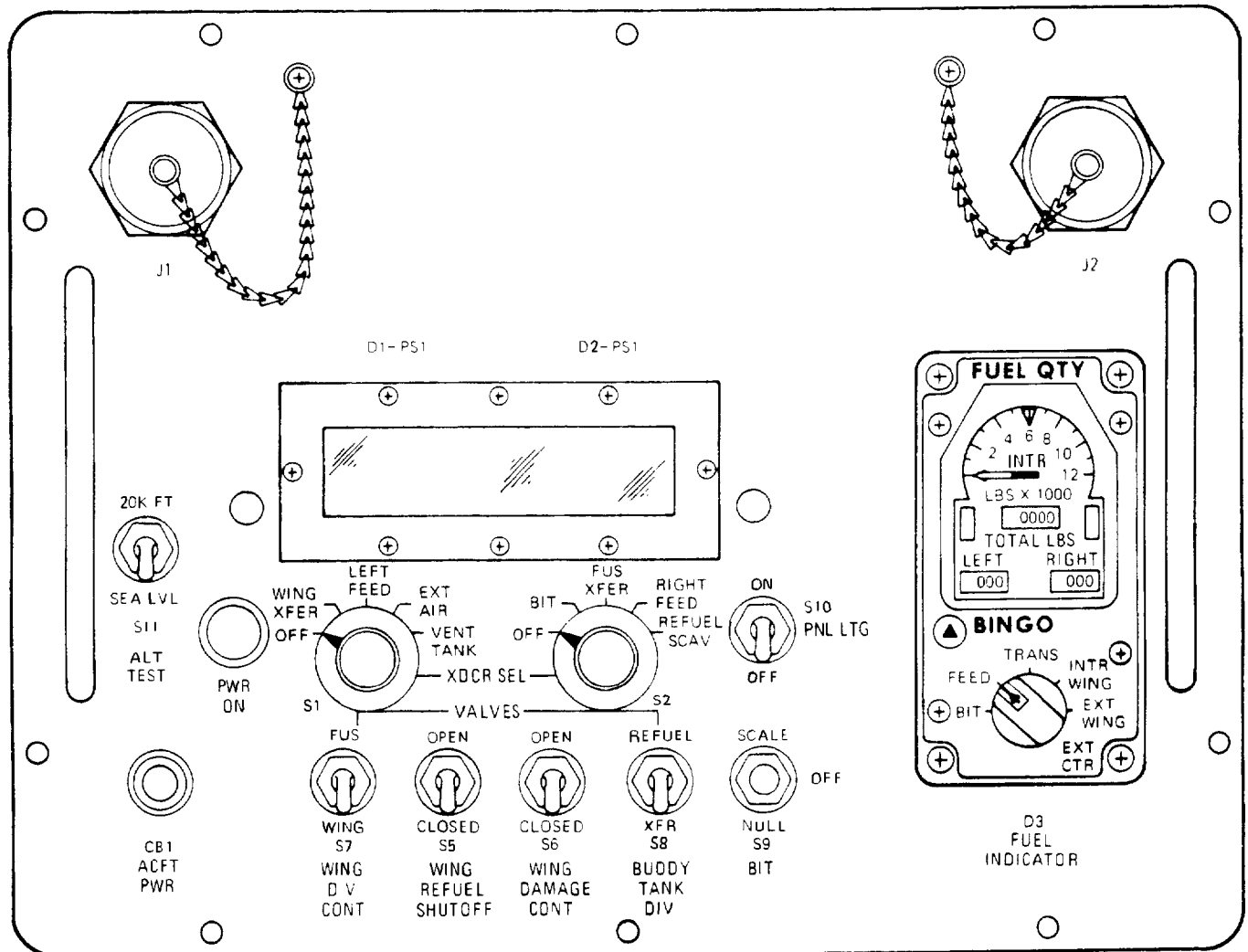
Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 1 of 2)



A
NOSE WHEELWELL, LEFT SIDE

12050402

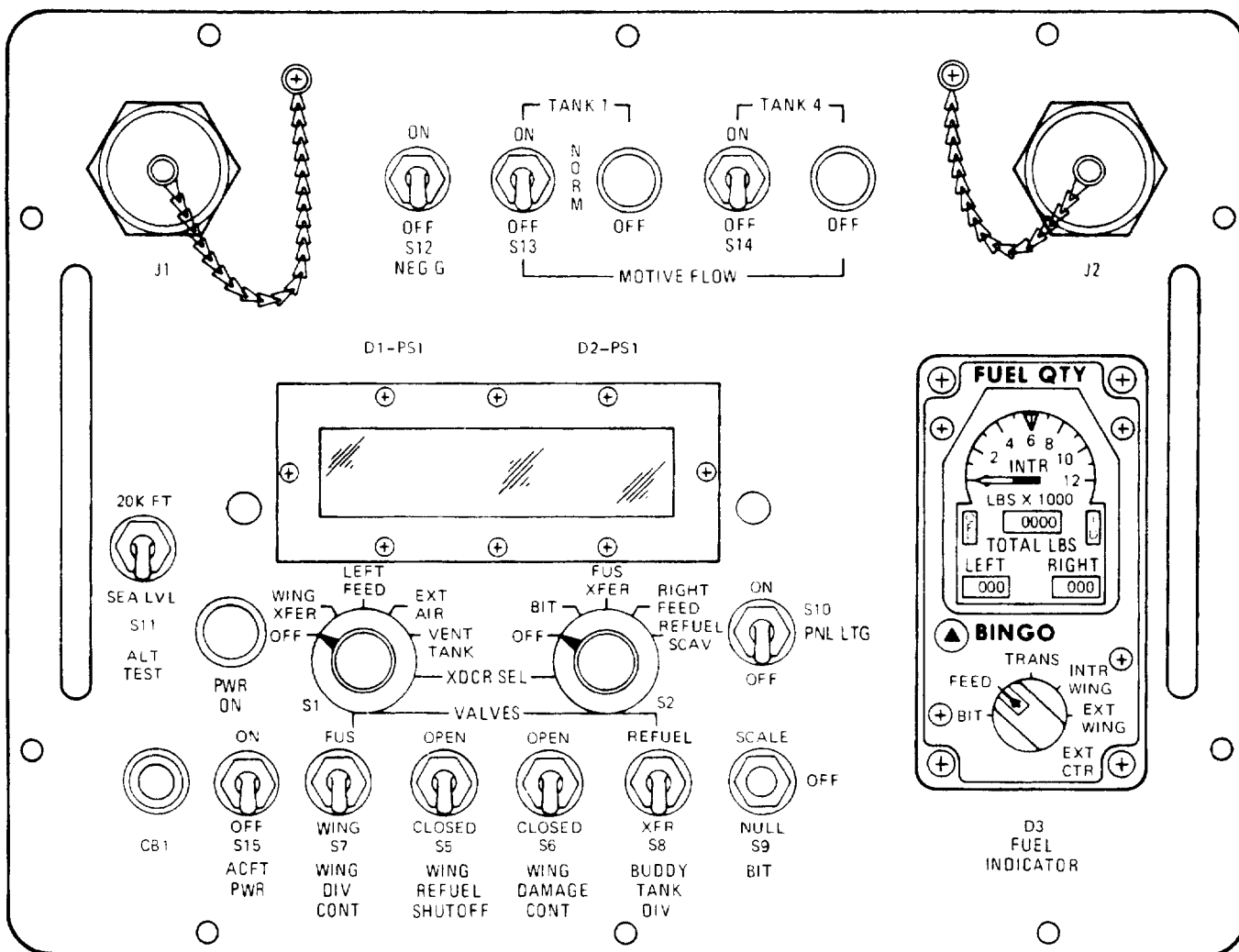
Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359
AFTER F/A-18 AFC 53 (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 5. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 5. Fuel System Test Set Controls and Displays (Sheet 2)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
NO. 4 FUEL TANK TRANSFER TEST
INTERNAL FUEL TRANSFER SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
 Line Maintenance Procedures A1-F18AC-LMM-000
 Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Controls and Displays, Figure 5	22
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 3	19
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 4	20
No. 4 Fuel Tank Not Transferring, Table 2	9
No. 4 Fuel Tank Transfer Test Component Locator, Figure 1	11
No. 4 Fuel Tank Transfer Test, Table 1	2
No. 4 Fuel Tank Transfer Test Troubleshooting Component Locator, Figure 2	13

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Jul 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

NOTE

Internal Fuel Transfer System Schematic
 (A1-F18AC-460-500, WP007 00), may be used
 while doing this test.

2. The no. 4 fuel tank transfer test verifies tank 4 is
 transferring correctly. The test must be done in se-
 quence and any abnormal indication must be corrected
 before going to next step.

1. NO. 4 TANK TRANSFER TEST.

Table 1. No. 4 Fuel Tank Transfer Test

Procedure	Normal Indication	Remedy for Abnormal Indication												
<p>System Required Components</p> <p>All system components installed.</p> <p>Related Systems Required</p> <p>Electrical System Hydraulic System Power Plant and Related System Secondary Power System</p> <p>Support Equipment Required</p> <p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>74D460108-1001</td><td>Fuel System Test Set</td></tr><tr><td>74D460108-1003</td><td>Fuel System Test Set</td></tr><tr><td>74D460125-1001</td><td>Special Purpose Fuel Test Set Cable</td></tr><tr><td>(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))</td><td></td></tr><tr><td>—</td><td>External Electrical Power Source</td></tr></table> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>If this test is being done to troubleshoot a no. 4 fuel tank transfer failure, first do a transfer leak test (A1-F18AC-460-200, WP012 00). If aircraft passes leak test continue this test.</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>Component locations are shown in figure 1.</p>			Part Number or Type Designation	Nomenclature	74D460108-1001	Fuel System Test Set	74D460108-1003	Fuel System Test Set	74D460125-1001	Special Purpose Fuel Test Set Cable	(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))		—	External Electrical Power Source
Part Number or Type Designation	Nomenclature													
74D460108-1001	Fuel System Test Set													
74D460108-1003	Fuel System Test Set													
74D460125-1001	Special Purpose Fuel Test Set Cable													
(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))														
—	External Electrical Power Source													
1. PREPARATION.														

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">NOTE</p> <p>The refuel system must master precheck to remove the possibility of a failed open tank no. 4 fuel level control shutoff valve. This failure would allow wing recirculation fuel to refill tank 4 while tank 1 empties.</p> <p>Fuel quantity gaging system must pass BIT to prevent wrong test results.</p> <p>Refuel system master precheck and fuel quantity gaging BIT tests are done during refueling.</p>		
<p>a. If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 TOTAL LBS.</p> <p>b. Rotate master precheck handle to DOWN OFF.</p> <p>c. Disconnect refueling equipment (A1-F18AC-PCM-000).</p> <p>d. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>e. Set cockpit controls as listed below (fig 1):</p>		
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
2. FUEL SYSTEM TEST SET HOOKUP.		
<p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 3 or 4).</p>		

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p>		
<p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics by door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.</p>		
<p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per substeps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 3).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p>		

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 4).</p> <p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 5), set switches as listed below:</p> <p>S1 - OFF S2 - OFF S5 - CLOSED S6 - CLOSED S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICATOR- Selector knob to TRANS</p> <p>f. On 74D460108-1003 test set, set switches per substep below:</p> <p>S12 - OFF S13 - OFF S14 - ON S15 - OFF</p>		

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
g. Observe red OFF and yellow ID flags on FUEL QTY indicator.	OFF flag red and ID flag yellow.	Replace test set.
h. Turn on external electrical power (A1-F18AC-LMM-000).		
i. On test set, close CB1 circuit breaker.		
j. On 74D460108-1003 test set, set switch S15 to ON.	D1 and D2 displays all minus signs.	Do table 3, WP013 02.
k. Observe red OFF and yellow ID flags on FUEL QTY indicator.	OFF flag black and ID flag black.	Replace test set.
l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle.	Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTR needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.	Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.
m. Release D3 FUEL INDICATOR selector knob.	Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counters return without stopping or jerking.	Replace test set.
3. TRANSDUCER CHANNEL BIT. (QA)		
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 3, WP013 02.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 3, WP013 02.
c. Release switch S9.		

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
4. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>The FUS XFER pressure transducer is monitored for this test. If a transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
<p>a. Set switch S2 to FUS XFER. Record D2 display (non-nulled).</p> <p>b. Set switch S9 to NULL and re-lease.</p>	D2 displays 000.	Do table 2, WP036 00.
5. TEST.		
<p>a. Prepare aircraft for engine or APU operation (A1-F18AC-LMM-000).</p>		
<div style="border: 2px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
<p>b. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do substeps below:</p> <p style="margin-left: 40px;">(1) Shut down APU or engine (A1-F18AC-LMM-000).</p> <p style="margin-left: 40px;">(2) Tell fire department and take required action to make area safe.</p>		

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">NOTE</p> <p>When D2 displays approximately 5 psi, the fuel transfer shutoff valve in tank 3 is open allowing tank 4 to transfer fuel. When D2 displays approximately 50 psi, the fuel transfer shutoff valve is closed.</p>		
c. Operate APU in ground maintenance mode, right AMAD only (A1-F18AC-LMM-000) or operate right engine at ground IDLE (A1-F18AC-LMM-000).	On fuel system test set, D2 displays from approximately 5 or 50 PSI.	Do table 2.
d. On FUEL QTY indicator, monitor RIGHT counter.	RIGHT counter indicates tank 4 fuel amount decreasing at a minimum rate of 400 lb per minute.	Do table 2.
e. On FUEL QTY indicator, monitor RIGHT counter to determine when tank 4 is tank 4 goes empty.	On fuel system test set, D2 displays 0 PSI after tank 4 goes empty.	Replace no. 4 fuel tank transfer shutoff valve pilot valve (A1-F18AC-460-300, WP116 00).
f. Record no. 4 fuel tank fuel amount.		
g. Shut down engine or APU (A1-F18AC-LMM-000).	Tank 4 fuel amount does not increase above amount recorded in previous step (verifying tank 3 gravity feed check valve is closed).	Replace no. 3 fuel tank gravity feed check valve (A1-F18AC-460-300, WP115 00).
6. FINAL.		
a. Disconnect fuel system test set.		
b. Set cockpit switches as listed below (fig 1):		
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM

Table 1. No. 4 Fuel Tank Transfer Test (Continued)

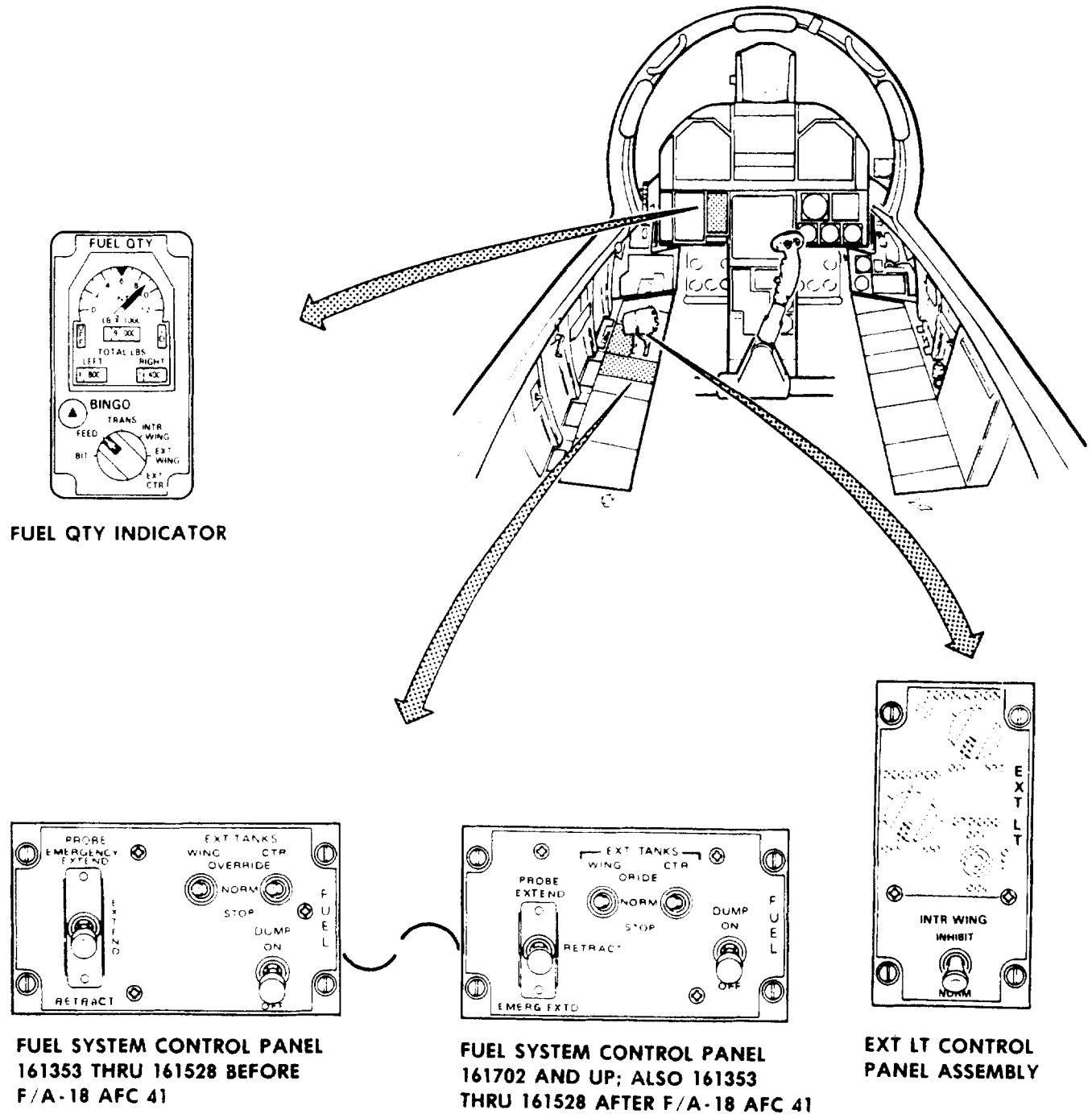
Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. Make sure master precheck valve handle in door 8 is in DOWN NORMAL position.</p> <p>d. Close doors 8 and, if applicable, door 46R (A1-F18AC-LMM-010).</p> <p>e. On 161353 THRU 161359 land base only, do substeps below:</p> <p>(1) Connect 5P-F014B to J2 on intermediate device (door 14R).</p> <p>(2) Close door 14R (A1-F18AC-LMM-010).</p> <p>f. Refuel aircraft (A1-F18AC-PCM-000).</p>		

Table 2. No. 4 Fuel Tank Not Transferring

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>Malfunction is caused by one of the items below:</p> <p align="center">No. 4 Fuel Tank Transfer Control Valve</p> <p align="center">No. 4 Fuel Tank Transfer Jet Ejector</p> <p align="center">No. 4 Fuel Tank Transfer Shutoff Valve and Pilot Valve</p>		
Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Shut down engine or APU (A1-F18AC-LMM-000).</p>		

Table 2. No. 4 Fuel Tank Not Transferring (Continued)

Procedure	No	Yes
(2) Remove no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00). Is ejector clogged or inlet check valve failed closed?	b	c
b. Replace no. 4 fuel tank fuel transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP116 00). On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 053, replace no. 4 fuel transfer control valve (A1-F18AC-460-300, WP116 03). Reinstall no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00).		
c. Replace no. 4 fuel tank fuel transfer jet ejector (A1-F18AC-460-300, WP117 00)	-	-



12060101

Figure 1. No. 4 Fuel Tank Transfer Test Component Locator (Sheet 1 of 2)

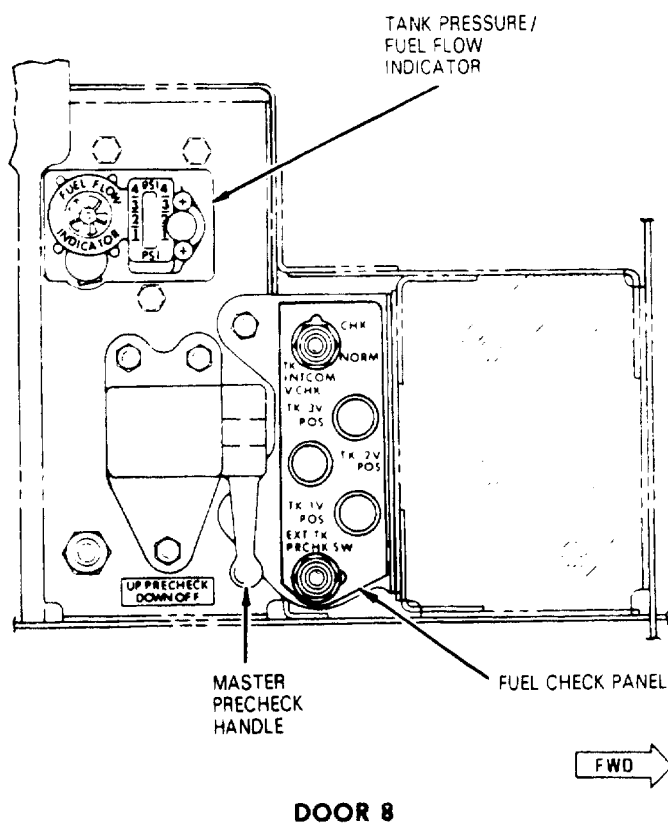
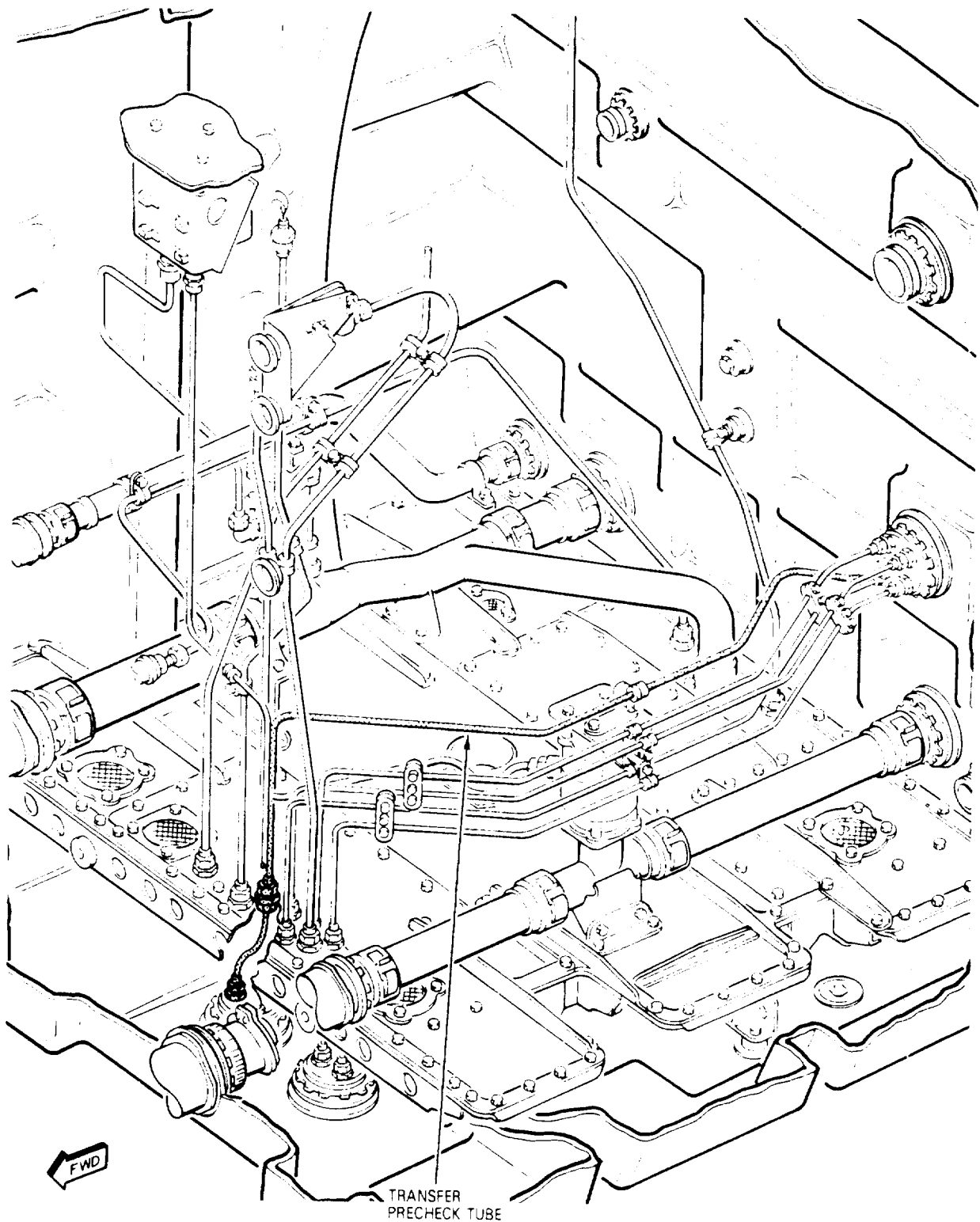


Figure 1. No. 4 Fuel Tank Transfer Test Component Locator (Sheet 2)

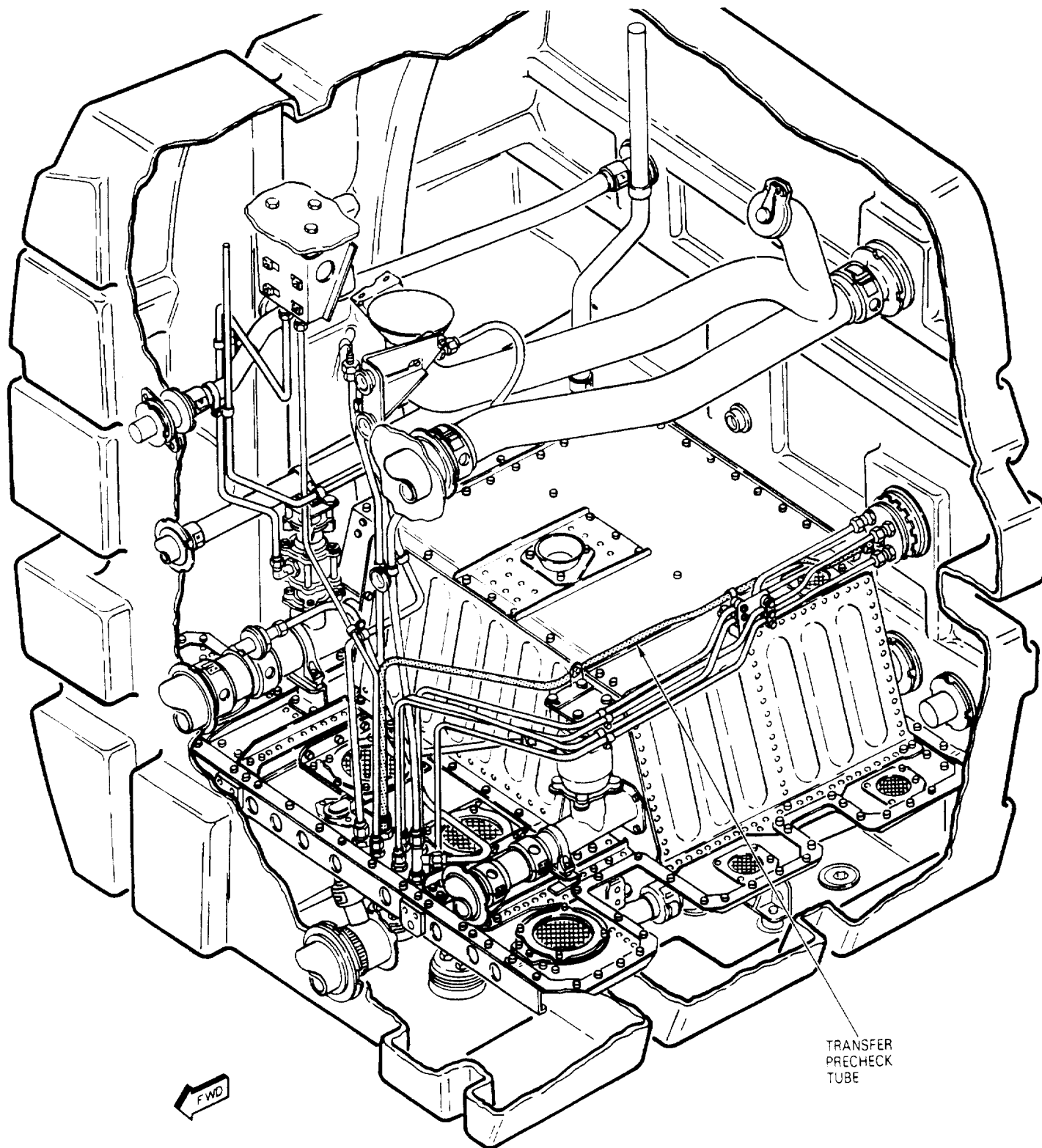


NO. 2 FUEL TANK

161353 THRU 161715
BEFORE F/A-18 AFC 053

12060201

Figure 2. No. 4 Fuel Tank Transfer Test Troubleshooting Component Locator (Sheet 1 of 6)

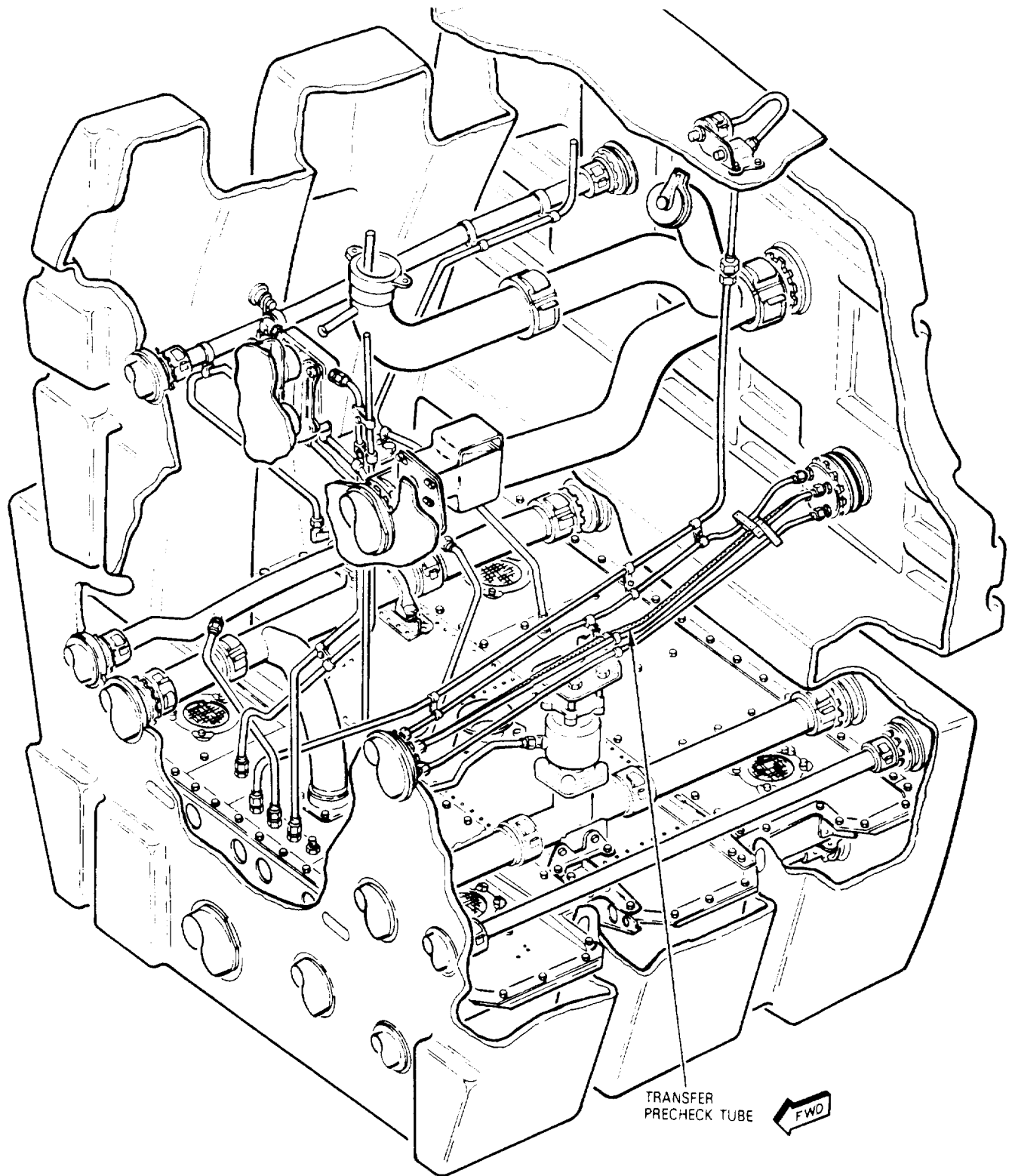


NO. 2 FUEL TANK

161716 AND UP: ALSO
161353 THRU 161715
AFTER F/A-18 AFC 053

12060202

**Figure 2. No. 4 Fuel Tank Transfer Test Troubleshooting
Component Locator (Sheet 2)**

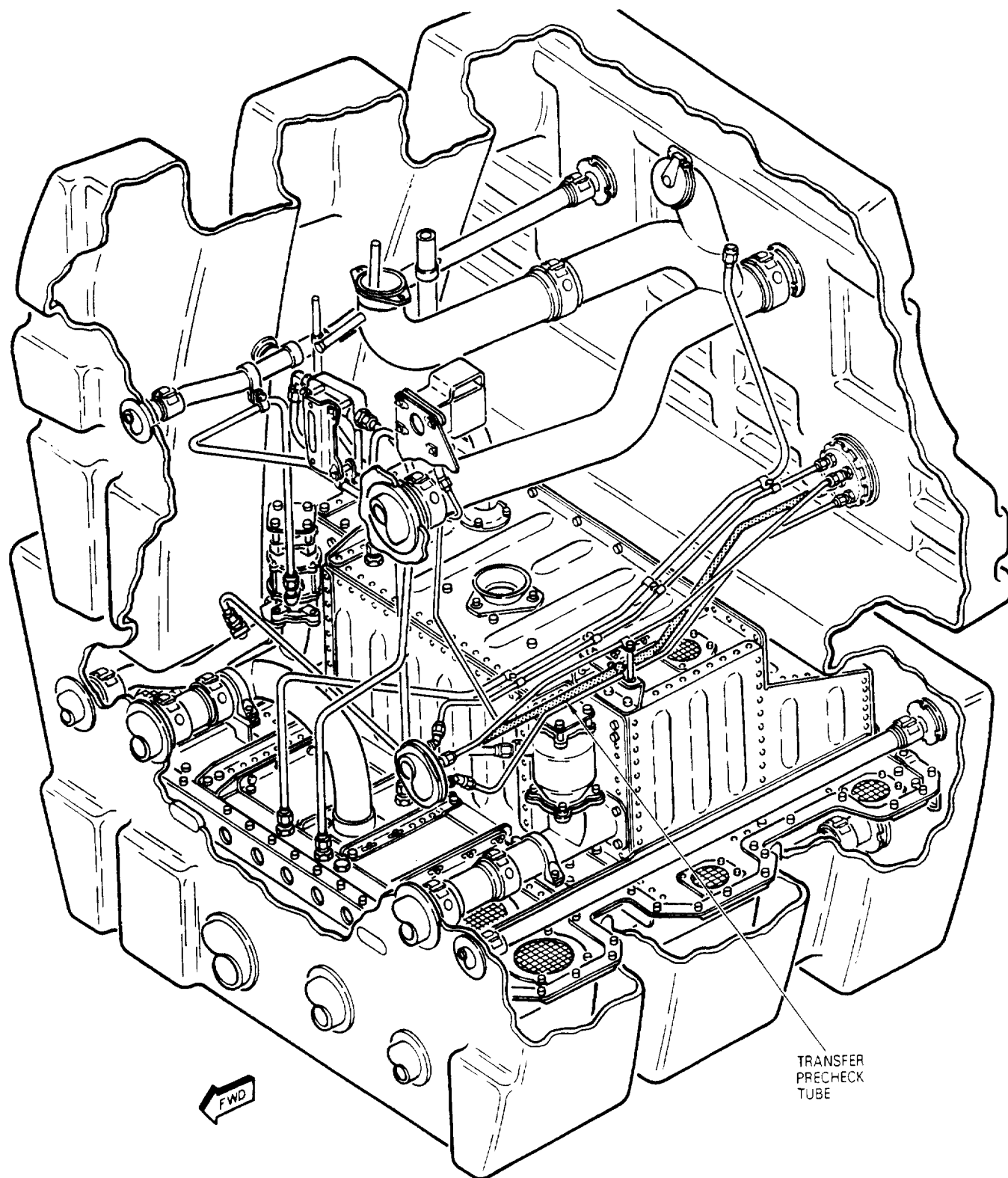


NO. 3 FUEL TANK

161353 THRU 161715
BEFORE F/A-18 AFC 053

12060203

**Figure 2. No. 4 Fuel Tank Transfer Test Troubleshooting
Component Locator (Sheet 3)**

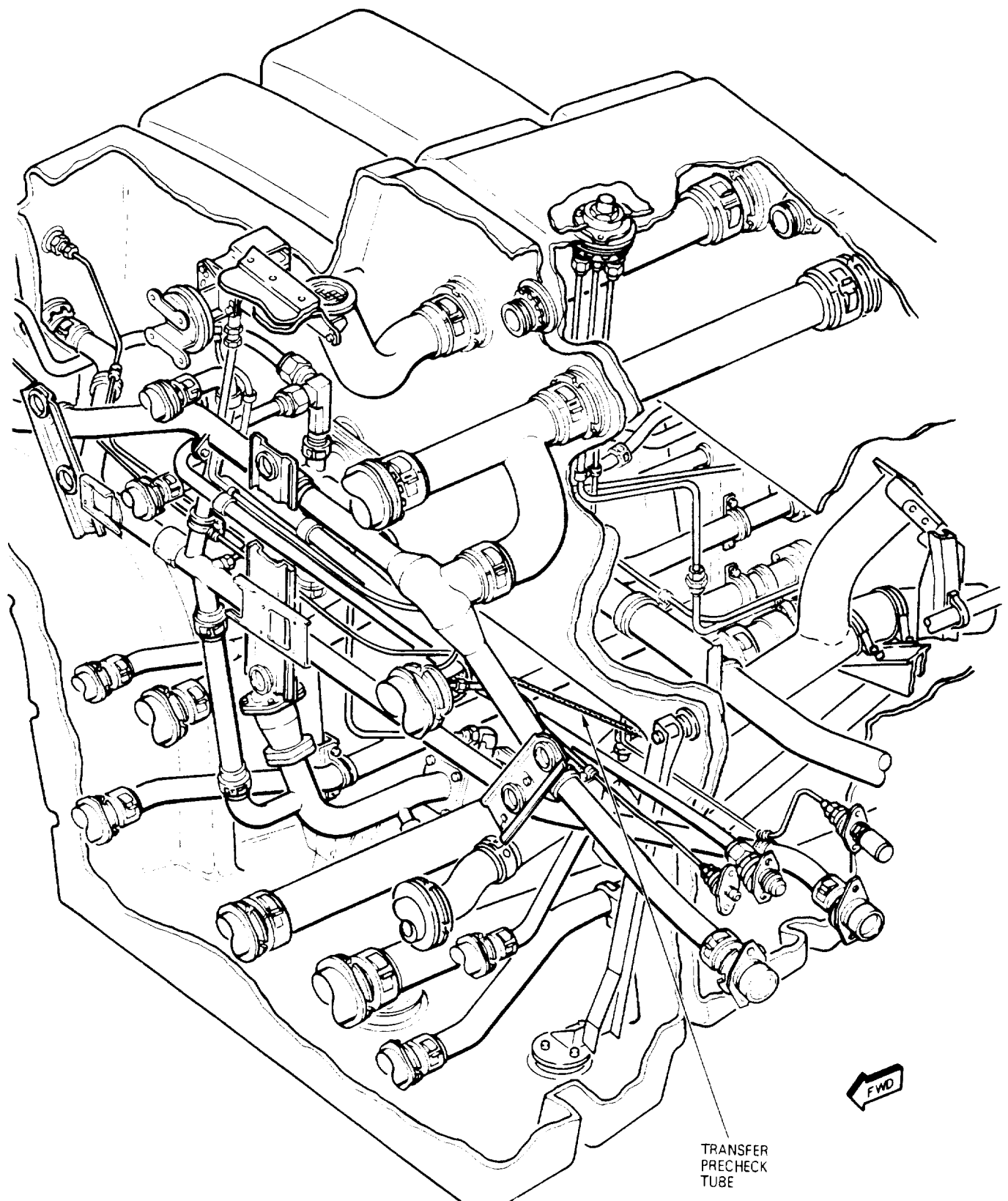


NO. 3 FUEL TANK

161716 AND UP; ALSO
161353 THRU 161715
AFTER F/A-18 AFC 053

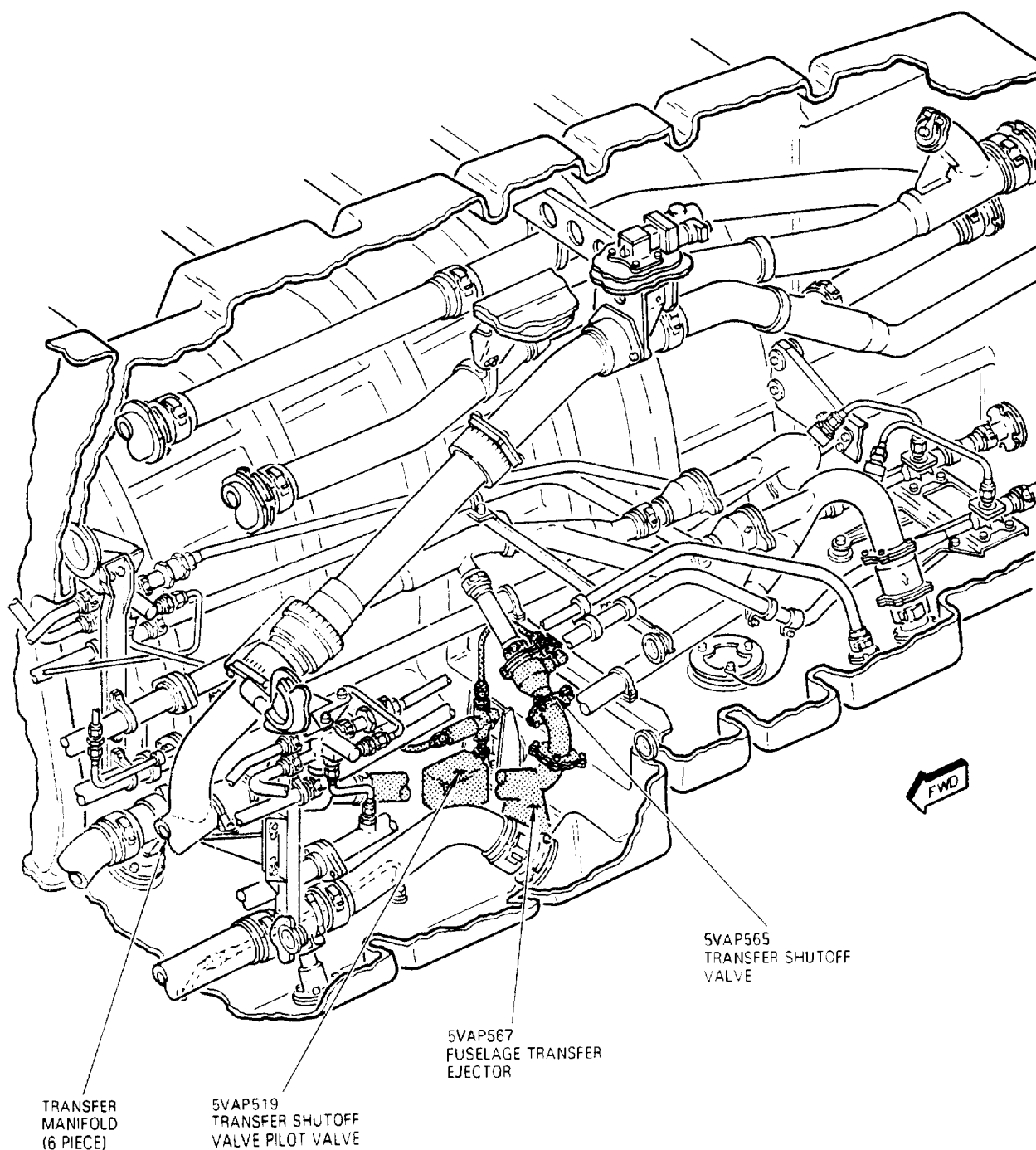
12060204

**Figure 2. No. 4 Fuel Tank Transfer Test Troubleshooting
Component Locator (Sheet 4)**



NO. 4 FUEL TANK

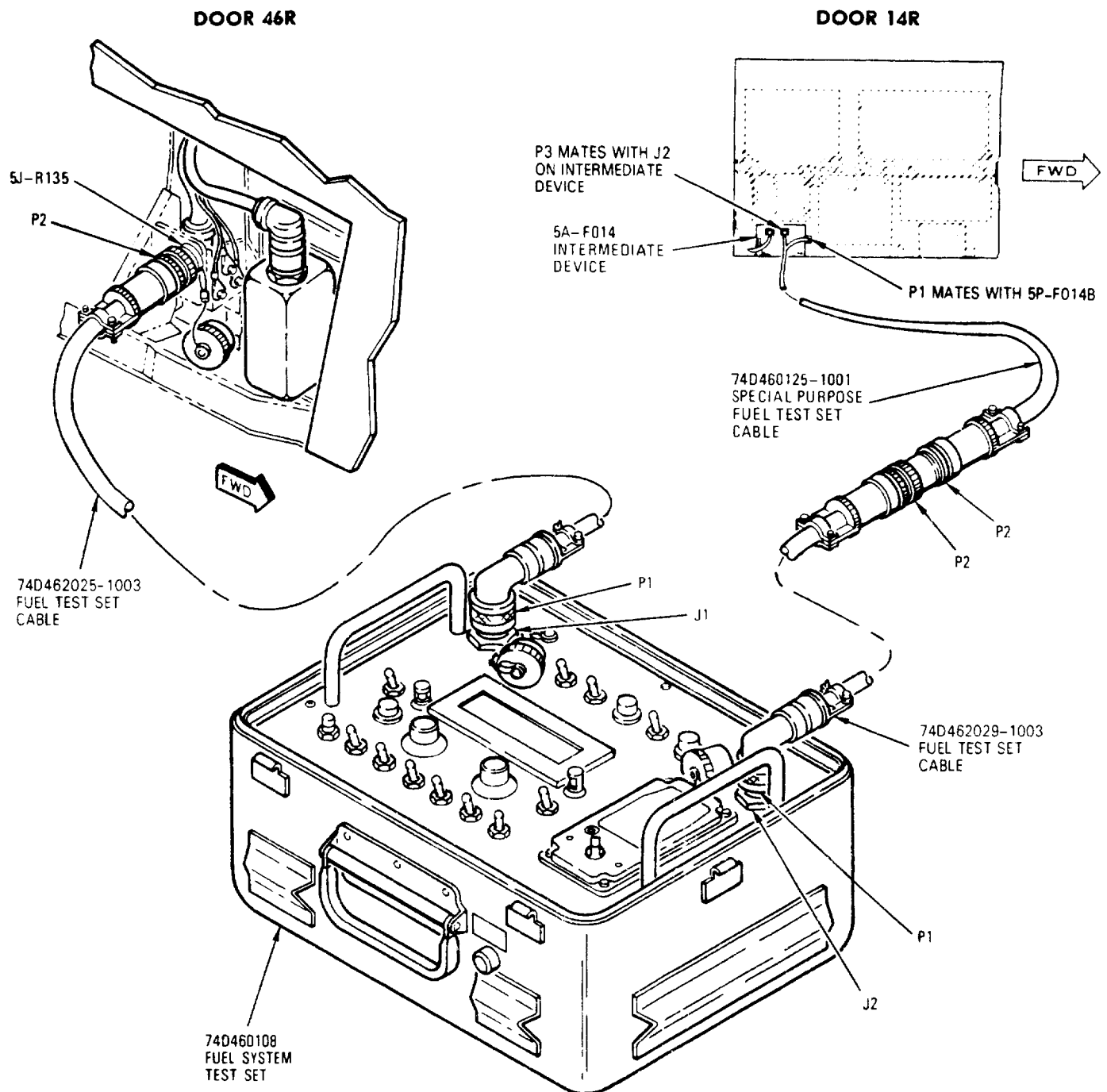
Figure 2. No. 4 Fuel Tank Transfer Test Troubleshooting Component Locator (Sheet 5)



NO. 4 FUEL TANK

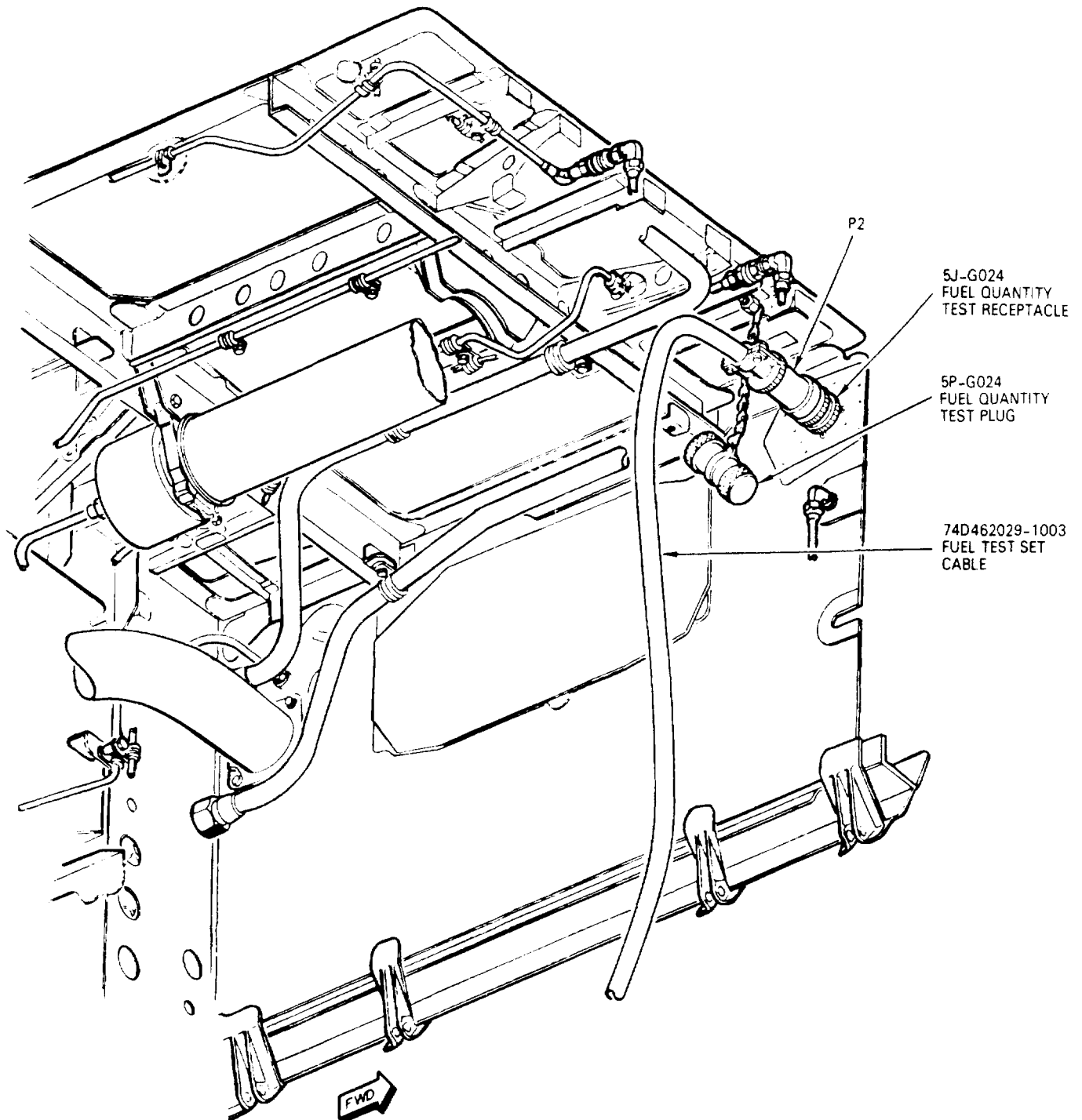
12060206

Figure 2. No. 4 Fuel Tank Transfer Test Troubleshooting Component Locator (Sheet 6)



01206003

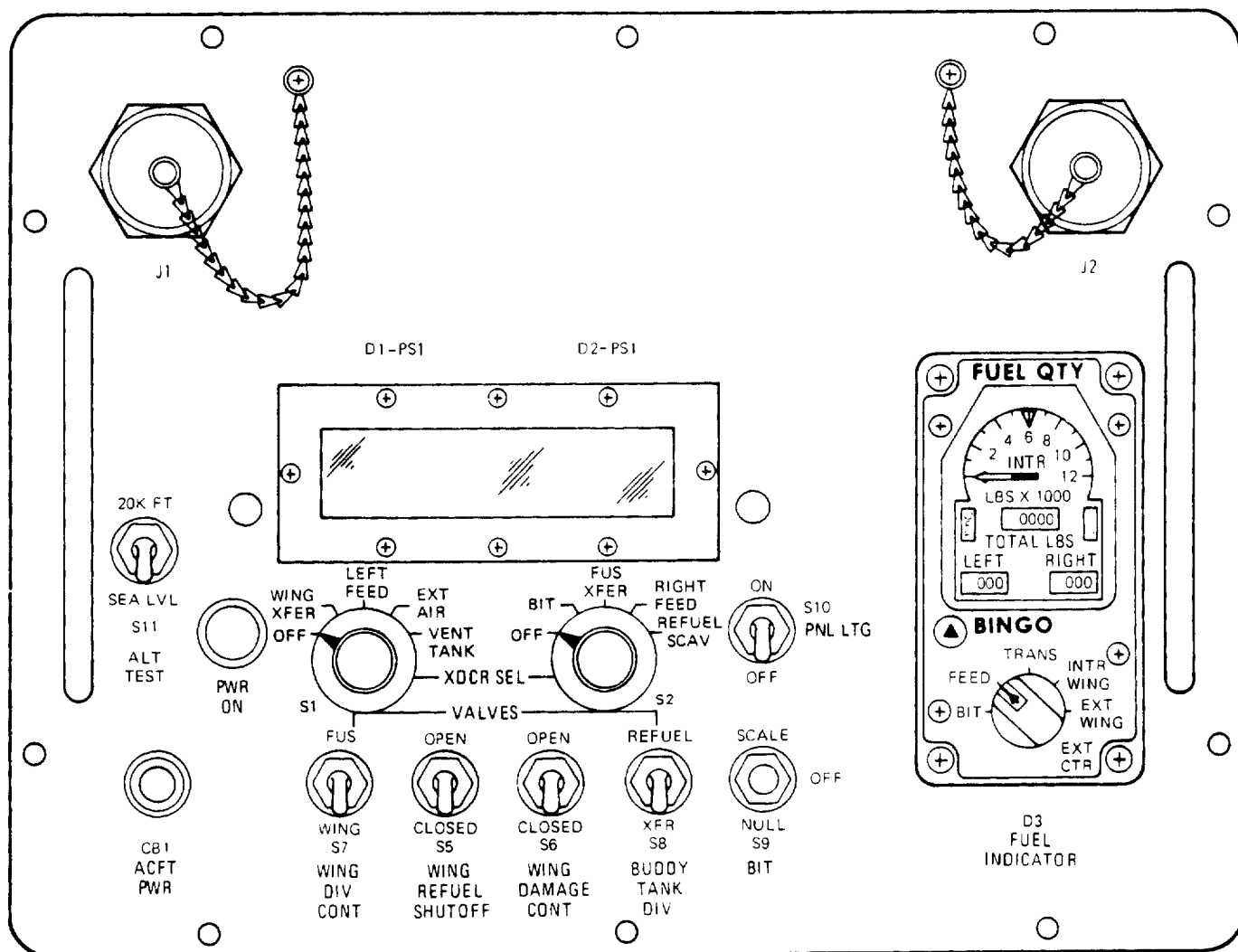
Figure 3. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53



A
NOSE WHEELWELL, LEFT SIDE

12060402

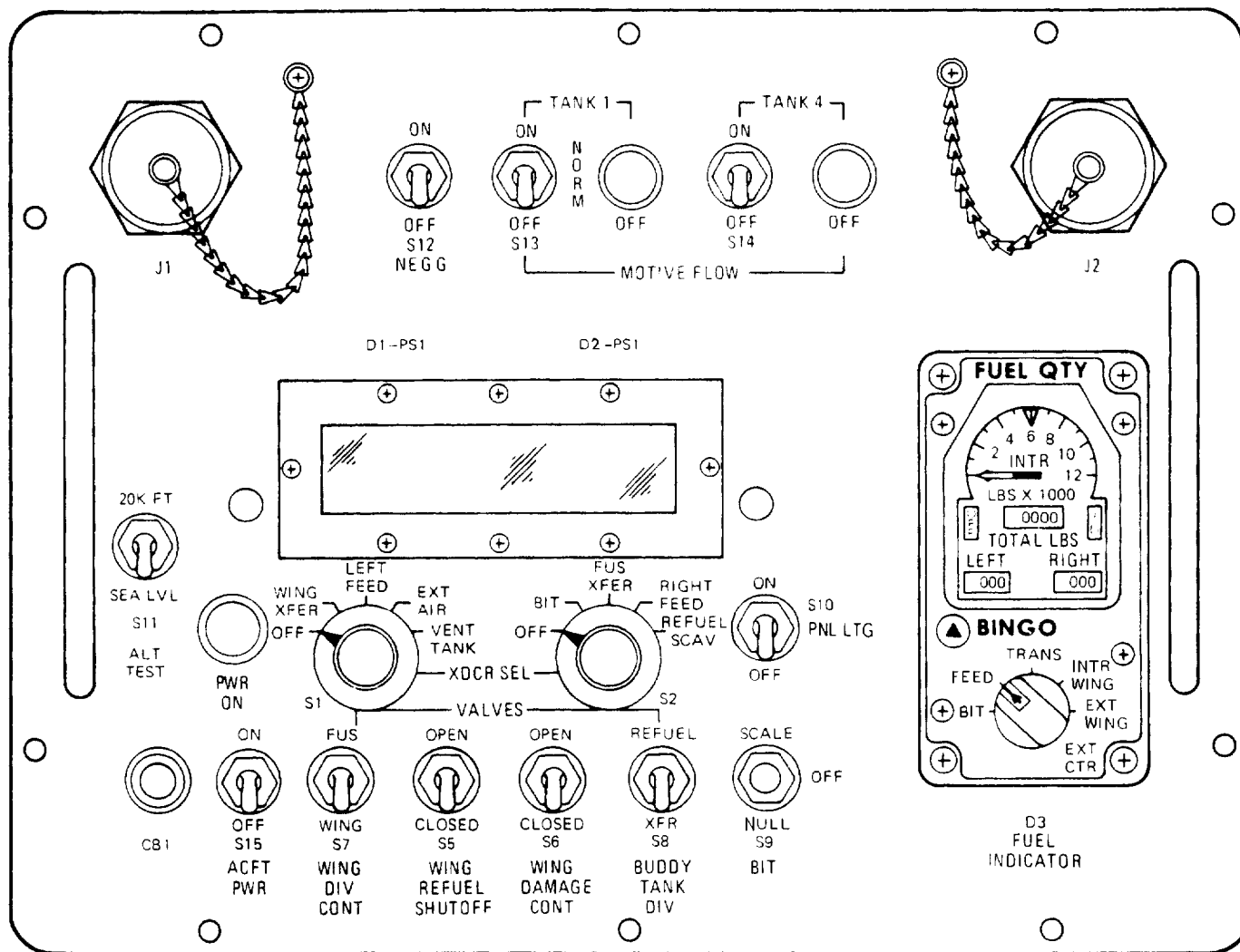
**Figure 4. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359
AFTER F/A-18 AFC 53 (Sheet 2)**



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 5. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 5. Fuel System Test Set Controls and Displays (Sheet 2)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE

TESTING AND TROUBLESHOOTING

ENGINE FUEL SHUTOFF TEST

AND

TURBINE BOOST PUMP TEST

ENGINE FUEL SUPPLY SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Code 944 - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070, Table 11	35
Code 942 Not Displayed When Right Engine FIRE Warning Light Pressed, Table 6	18
Code 942, Table 9	29
Code 943 Not Displayed When Left Engine FIRE Warning Light Pressed, Table 7	21
Code 943, Table 10	32
Code 944 Not Displayed - 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 070, Table 12	39
Crossfeed Shutoff Valve Does Not Close When Left Engine FIRE Warning Light Pressed, Table 5	14
Crossfeed Shutoff Valve Does Not Close When Right Engine FIRE Warning Light Pressed, Table 4	10
Engine Fuel Shutoff Leak Test Component Locator, Figure 1	51
Engine Fuel Shutoff Test, Table 1	2
FIRE Light On LH Advisory and Threat Warning Indicator Panel Does Not Shut Down Engine, Table 3	9
FIRE Light On RH Advisory and Threat Warning Indicator Panel Does Not Shut Down Engine, Table 2	8
Fuel System Test Set Controls and Displays, Figure 3	55
Fuel System Test Set Hookup, Figure 2	54
L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070, Table 14	46
R and L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070, Table 15	49
R BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070, Table 13	43
Turbine Boost Pump Test - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18, AFC 018, Table 8	23

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 IAFC 056	27 Mar 85	Fuel System Components Replacement and System Inspection (ECP MDA-F/A-18-00158R1 AND ECP MDA-F/A-18-00160)	1 Nov 85	—
F/A-18 AFC 70	—	Installation of Motive Flow Fuel Boost Pump Pressure Switch (ECP MDA-F/A-18-00158R28 AND ECP MDA-F/A-18-00160)	1 Jun 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Fuel Tanks 2 and 3 (ECP MDA-F/A-18-00077C1/C2)	1 Jun 86	—

Table 1. Engine Fuel Shutoff Test

Procedure	Normal Indication	Remedy for Abnormal Indication				
<div>System Required Components</div> <div>All system components installed.</div> <div>Related Systems Required</div> <div>Electrical System</div> <div>Multipurpose Display Group</div> <div>Support Equipment Required</div> <div>None</div> <div>Materials Required</div> <table><tr><td>Specification or Part Number</td><td>Nomenclature</td></tr><tr><td>MS20995NC32</td><td>Lockwire (if required)</td></tr></table> <div>NOTE</div> <div>Engine Fuel Supply System and Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP008 00 and WP010 00) may be used while doing this test.</div> <div>For component location, refer to figure 1, WP014 00.</div>			Specification or Part Number	Nomenclature	MS20995NC32	Lockwire (if required)
Specification or Part Number	Nomenclature					
MS20995NC32	Lockwire (if required)					
1. PREPARATION.						
a. Refuel aircraft (A1-F18AC-PCM-000).						
b. Prepare aircraft for engine operation (A1-F18AC-LMM-000).						

Table 1. Engine Fuel Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>2. TEST (QA).</p> <p>a. Operate left and right engines at ground IDLE (A1-F18AC-LMM-000).</p>		
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">It takes approximately 60 seconds for engine to shutdown after FIRE light is pushed.</p>		
<p>b. On RH advisory and threat warning indicator panel, push FIRE light (fig 1).</p> <p>c. Release right FIRE light.</p> <p>d. Restart right engine (A1-F18AC-LMM-000).</p> <p>e. On LH advisory and threat warning indicator panel, push FIRE light (fig 1).</p> <p>f. Shut down engines (A1-F18AC-LMM-000).</p> <p>g. Release left FIRE light.</p> <p>h. Position left throttle grip to OFF.</p>	<p>1. Right engine shuts down.</p> <p>2. Engine right voice alert is heard. R FLAMEOUT caution light is displayed. Code 766 is displayed.</p>	<p>1. Do table 2.</p> <p>2. Refer to FLAMEOUT Cautions and Maintenance Codes Schematic (A1-F18AC-270-500, WP010 00).</p>
<p>3. MAINTENANCE CODE TEST 163119 AND UP AND 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070. (QA)</p> <p>a. Apply external electrical power (A1-F18AC-LMM-000).</p>	<p>1. Left engine shuts down.</p> <p>2. Engine left voice alert is heard. L FLAMEOUT caution light is displayed. Code 716 is displayed.</p>	<p>1. Do table 3.</p> <p>2. Refer to FLAMEOUT Cautions and Maintenance Codes Schematic (A1-F18AC-270-500, WP010 00).</p>

Table 1. Engine Fuel Shutoff Test (Continued)


Procedure	Normal Indication	Remedy for Abnormal Indication
<p>b. On GND PWR control panel assembly, set and hold for three seconds 1 switch to A ON (A1-F18AC-LMM-000).</p> <p>c. On ELEC power control panel, set BATT switch to ON (A1-F18AC-LMM-000).</p> <p>d. Observe nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).</p>	<p>1. Code 942 displayed.</p> <p>2. Code 943 displayed.</p> <p>3. Code 944 displayed.</p>	<p>1. Do table 9.</p> <p>2. Do table 10.</p> <p>3. Do table 11.</p>
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>Setting the FIRE warning light, arms the engine fire extinguishers. Do not set the ARMED/DISCHG switch on cockpit master arm control panel assembly.</p>		
<p>e. Push left FIRE light on LH advisory and threat warning indicator panel and reset nose wheelwell DDI (A1-F18AC-LMM-000).</p> <p>f. Release left FIRE light on LH advisory and threat warning indicator panel.</p> <p>g. Reset nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).</p> <p>h. Push right FIRE light on RH advisory and threat warning indicator panel and reset nose wheelwell DDI nose wheelwell DDI (A1-F18AC-LMM-000).</p> <p>i. Release right FIRE light on RH advisory and threat warning indicator panel.</p>	<p>IN L MLG wheelwell, verify fuel shutoff valve manual override arm is in the CLOSED (-) position. On nose wheelwell DDI, codes 943 (left engine fuel shutoff valve closed) and 944 (fuel crossfeed shutoff valve closed) displayed.</p> <p>In L MLG wheelwell, verify fuel shutoff manual override arm is in the OPEN (+) position.</p> <p>1. Code 943 not displayed.</p> <p>2. Code 944 not displayed.</p> <p>IN R MLG wheelwell, verify fuel shutoff valve manual override arm is in the CLOSED (-) position. On nose wheelwell DDI, codes 942 (right engine fuel shutoff valve closed) and 944 (fuel crossfeed shutoff valve Closed) displayed.</p> <p>In R MLG wheelwell, verify fuel shutoff manual override arm is in the OPEN (+) position.</p>	<p>If code 943 not displayed or manual override arm not CLOSED (-), do table 7. If code 944 not displayed, do table 5.</p> <p>1. Do table 10.</p> <p>2. Do table 11.</p> <p>If code 942 not displayed or manual override arm not CLOSED (-), do table 6. If code 944 not displayed, do table 4.</p>

Table 1. Engine Fuel Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>j. Reset nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).</p> <p>k. Set GND PWR switch 1 to A OFF (A1-F18AC-LMM-000).</p> <p>l. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>4. MAINTENANCE CODE TEST - 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 070. (QA)</p> <p>a. Apply external electrical power (A1-F18AC-LMM-000).</p> <p>b. On GND PWR control panel assembly, set and hold for three seconds 1 switch to A ON (A1-F18AC-LMM-000).</p> <p>c. On ELEC power control panel, set BATT switch to ON.</p> <p>d. Observe nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).</p>	<p>1. Code 942 not displayed.</p> <p>2. Code 944 not displayed.</p>	<p>1. Do table 9.</p> <p>2. Do table 11.</p>
<p>e. Push left FIRE light on LH advisory and threat warning indicator panel (fig 1).</p>	<p>1. Code 942 not displayed.</p> <p>2. Code 943 not displayed.</p> <p>3. Code 944 not displayed.</p>	<p>1. Do table 9.</p> <p>2. Do table 10.</p> <p>3. Do table 12.</p>
<p style="text-align: center;">NOTE</p> <p>Setting the FIRE warning light, arms the engine fire extinguishers. To avoid accidental discharge do not set the ARMED/DISCHG switch on cockpit master arm control panel assembly unless an engine fire occurs.</p>		
	<p>In L MLG wheelwell, verify fuel shutoff valve manual override arm is in the CLOSED (-) position. On nose Wheelwell DDI, code 943 displayed (left engine fuel shutoff valve closed); code 944 not displayed (fuel crossfeed shutoff valve closed).</p>	<p>If code 943 not displayed or manual override arm not CLOSED (-), do table 7. If code 944 displayed, do table 5.</p>

Table 1. Engine Fuel Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
f. Release left FIRE light on LH advisory and threat warning indicator panel.	In L MLG wheelwell, verify fuel shutoff manual override arm is in the OPEN (+) position.	Do table 10.
g. Reset nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).	1. Code 943 not displayed. 2. Code 944 not displayed.	1. Do table 10. 2. Do table 12.
h. Push right FIRE light on RH advisory and threat warning indicator panel.	In R MLG wheelwell, verify fuel shutoff valve manual override arm is in the CLOSED (-) position. On nose wheelwell DDI, code 942 displayed (right engine fuel shutoff valve closed); code 944 not displayed (fuel crossfeed shutoff valve closed).	If code 942 not displayed or if manual override arm is not CLOSED (-), do table 6. If code 944 displayed, do table 4.
i. Release right FIRE light on RH advisory and threat warning indicator panel.	In R MLG wheelwell, verify fuel shutoff valve manual override arm is in the OPEN (+) position.	Do table 9.
j. Reset nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).	1. Code 942 not displayed. 2. Code 944 not displayed.	1. Do table 9. 2. Do table 12.
k. Set GND PWR switch 1 to A OFF (A1-F18AC-LMM-000).		
l. Turn off external electrical power (A1-F18AC-LMM-000).		
5. ENGINE FUEL SHUTOFF LEAK TEST. (QA)		
a. Remove doors 53L and 53R (A1-F18AC-LMM-010).		
<p style="text-align: center;">NOTE</p> <p>Setting the FIRE warning light, arms the engine fire extinguishers. To avoid accidental discharge do not set the ARMED/DISCHG switch on cockpit master arm control panel assembly unless engine fire occurs.</p>		
b. Push left and right FIRE lights on LH and RH advisory and threat warning indicator panels (fig 1).		

Table 1. Engine Fuel Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. On ELEC power control panel, set BATT switch to OFF (A1-F18AC-LMM-000).</p> <p>d. Position an approved safety container below each cap (fig 1) to catch residual fuel when cap is removed.</p>		
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> WARNING </div> <p>To prevent personal injury, do not stand directly under cap when draining residual fuel.</p>		
<p>e. Remove both caps and drain residual fuel (approximately 2 gallons of fuel will drain from each side).</p> <p>f. Determine leakage rate for 1 minute.</p>	Allowable leakage rate is 300cc per min per side.	Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00). Gain access to no. 4 fuel tank (A1-F18AC-300, WP013 00). Replace engine fuel shutoff valve (A1-F18AC-460-300, WP135 00), engine motive flow check valve (A1-F18AC-460-300, WP121 00) and hot fuel recirculation check valve (A1-F18AC-460-300, WP144 00) on side that exceeded the maximum allowable leakage rate.
<p>g. Install caps on left and right tubes. If safetying holes are in tubes, safety caps with lockwire.</p> <p>h. Install doors 63L and 53R (A1-F18AC-LMM-010).</p> <p>i. On ELEC power control panel, set BATT switch to ON (A1-F18AC-LMM-000).</p> <p>j. Release left and right FIRE lights on LH and RH advisory and threat warning indicator panels.</p>		

Table 1. Engine Fuel Shutoff Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<div>CAUTION</div> <p>To prevent damage to battery bus contactors and/or batteries, be sure BATT switch is set to OFF and BATT SW caution light is off.</p> <p>k. On ELEC power control panel, set BATT switch to OFF (A1-F18AC-LMM-000).</p>		

Table 2. FIRE Light On RH Advisory and Threat Warning Indicator Panel Does Not Shut Down Engine

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP010 00) may be used while doing this test.</p> <p>For component location, refer to WP014 00, figures 1 and 2.</p> <p>Malfunction is caused by one of the items below:</p> <p>Aircraft Piping Engine Fuel Crossfeed Valve Engine Fuel Shutoff Valve Hot Fuel Recirculation Check Valve Motive Flow Check Valve</p>		
Procedure	No	Yes
<p>NOTE</p> <p>It takes approximately 60 seconds for engine to shut down after FIRE light is pressed.</p> <p>a. On LH advisory and threat warning indicator panel, push FIRE light. Does right engine stop?</p> <p>b. Do substeps below:</p> <p>(1) Shut down left and right engines (A1-F18AC-LMM-000).</p>		

Table 2. FIRE Light On RH Advisory and Threat Warning Indicator Panel Does Not Shut Down Engine (Continued)

Procedure	No	Yes
(2) Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00). Gain access to tank no. 4 (A1-F18AC-460-300, WP007 00 and WP008 00).		
(3) Check for line leakage (loose coupling, cracked tube) between right motive flow or right hot fuel recirculation check valves, or leakage between right engine fuel shutoff valve and tank wall (A1-F18AC-460-300, WP028 00). Does leakage exist?	d	e
c. Shut down left and right engines (A1-F18AC-LMM-000). Replace fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00)	-	-
d. Replace right engine fuel shutoff valve (A1-F18AC-460-300, WP135 00), engine motive flow check valve (A1-F18AC-460-300, WP121 00) and hot fuel recirculation check valve (A1-F18AC-460-300, WP144 00)	-	-
e. Replace defective plumbing (A1-F18AC-460-300, WP028 00)	-	-

Table 3. FIRE Light On LH Advisory and Threat Warning Indicator Panel Does Not Shut Down Engine

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP010 00) may be used while doing this test.</p> <p align="center">For component location, refer to WP014 00, figures 1 and 2.</p> <p>Malfunction is caused by one of the items below:</p> <p>Aircraft Piping Engine Fuel Shutoff Valve Fuel Crossfeed Shutoff Valve Hot Fuel Recirculation Check Valve Motive Flow Check Valve</p>
--

Table 3. FIRE Light On LH Advisory and Threat Warning Indicator Panel Does Not Shut Down Engine (Continued)

Procedure	No	Yes
<p align="center">NOTE</p> <p align="center">It takes approximately 60 seconds for engine to shut down after FIRE light is pressed.</p>		
a. On RH advisory and threat warning indicator panel, push FIRE light. Does left engine stop?	b	c
b. Do substeps below:		
(1) Shut down left engine (A1-F18AC-LMM-000).		
(2) Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00). Gain access to tank no. 4 (A1-F18AC-460-300, WP007 00 and WP008 00).		
(3) Check for line leakage (loose coupling, cracked tube) between left motive flow or left hot fuel recirculation check valves, or leakage between left engine fuel shutoff valve and tank wall (A1-F18AC-460-300, WP028 00). Does leakage-exist?	d	e
c. Shut down left and right engines (A1-F18AC-LMM-000). Replace fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00).		
d. Replace left engine fuel shutoff valve (A1-F18AC-460-300, WP135 00), engine motive flow check valve (A1-F18AC-460-300, WP121 00) and hot fuel recirculation check valve (A1-F18AC-460-300, WP144 00)	-	-
e. Replace defective plumbing (A1-F18AC-300, WP028 00)	-	-

Table 4. Crossfeed Shutoff Valve Does Not Close When Right Engine FIRE Warning Light Pressed

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 4. Crossfeed Shutoff Valve Does Not Close When Right Engine FIRE Warning Light Pressed (Continued)

NOTE		
<p>Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.</p> <p>For component locator, refer to figure 2, WP014 00.</p> <p>Malfunction is caused by one of the items below:</p> <p>Aircraft Wiring Fuel Crossfeed Shutoff Valve No. 5 Circuit Breaker Panel Assembly RH Advisory and Threat Warning Indicator Panel</p>		
Procedure	No	Yes
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) On no. 5 circuit breaker panel assembly (door 10R), is CROSSFEED FUEL VLV circuit breaker (zone A11) open?	c	b
b. Do substeps below:		
(1) Close CROSSFEED FUEL VLV (zone A11) circuit breaker.		
(2) Turn on external electrical power (A1-F18AC-LMM-000).		
(3) If circuit breaker continues to open, isolate short to ground using engine fuel supply system schematic (A1-F18AC-460-500, WP008 00) and do step q	-	-

Table 4. Crossfeed Shutoff Valve Does Not Close When Right Engine FIRE Warning Light Pressed (Continued)

Procedure	No	Yes
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002A, pin 61?	d	e
d. Do substeps below:		
(1) Open door 53L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-P105 (door 53L).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) With FIRE warning light pressed, does 28vdc exist at 52J-P105, pin 9?	f	g
e. Do Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00) and do step q	-	-
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-010).		
(2) Remove RH advisory and threat warning indicator panel (indicator panel) (A1-F18AC-440-300, WP022 00).		
(3) With FIRE warning light pressed, does continuity exist from 52A-J074 indicator panel receptacle pin 6 to pin 32?	h	i
g. Does a ground exist at 52J-P105, pin 33?	j	k
h. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step q	-	-
i. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Does 28vdc exist at 52J-J074 pin 6?	l	m
j. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step q	-	-
k. Does continuity exist from:		

Table 4. Crossfeed Shutoff Valve Does Not Close When Right Engine FIRE Warning Light Pressed (Continued)

Procedure	No	Yes
52J-P105 pin 14 to 85P-N002A pin 61 52J-P105 pin 31 to ground?	j	n
l. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(3) Does continuity exist from 52P-D092C pin 14 to 52A-J074 pin 6?	j	o
m. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52J-J074 pin 32 to 52J-P105 pin 9 and do step q	-	-
n. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 52 (A1-F18AC-LMM-010).		
(3) Remove fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00).		
(4) Does continuity exist from:		
52P-P105 pin 9 to 5P-P071 pin 7 52P-P105 pin 31 to 5P-P071 pin 11 52P-P105 pin 14 to 5P-P071 pin 10 52P-P105 pin 33 to 5P-P071 pin 12?	j	p
o. Isolate between CROSSFEED FUEL VLV circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step q	-	-
p. Replace fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00) and do step q	-	-
q. If disconnected, removed, or opened during this procedure make sure the items below are connected, installed, or closed:		
(1) RH advisory and threat warning indicator panel		
(2) Fuel crossfeed shutoff valve		
(3) 52P-D092C		
(4) 52P-P105		
(5) 85P-N002A		

**Table 4. Crossfeed Shutoff Valve Does Not Close When Right Engine
FIRE Warning Light Pressed (Continued)**

Procedure	No	Yes
(6) Door 10R		
(7) Door 32R		
(8) Door 52		
(9) Door 53L	-	-

**Table 5. Crossfeed Shutoff Valve Does Not Close When Left Engine
FIRE Warning Light Pressed**

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation

260-6XLP (AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.

For component locator, refer to figure 2, WP014 00.

Malfunction is caused by one of the items below:

Aircraft Wiring

Fuel Crossfeed Shutoff Valve

No. 5 Circuit Breaker Panel Assembly

RH Advisory and Threat Warning Indicator Panel

LH Advisory and Threat Warning Indicator Panel

Table 5. Crossfeed Shutoff Valve Does Not Close When Left Engine FIRE Warning Light Pressed (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) On no. 5 circuit breaker panel assembly (door 10R), is CROSSFEED FUEL VLV (zone A11) circuit breaker open?	c	b
b. Do substeps below:		
(1) Close CROSSFEED FUEL VLV (zone A11) circuit breaker.		
(2) Turn on external electrical power (A1-F18AC-LMM-000).		
(3) If circuit breaker continues to open, isolate short to ground using engine fuel supply system schematic (A1-F18AC-460-500, WP008 00) and do step u	-	-
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002A, pin 61?	d	e
d. Do substeps below:		
(1) Open door 53L (A1-F18AC-LMM-010).		

Table 5. Crossfeed Shutoff Valve Does Not Close When Left Engine FIRE Warning Light Pressed (Continued)

Procedure	No	Yes
(2) Disconnect 52P-P105 (door 53L).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) With FIRE warning light pressed, does 28vdc exist at 52J-P105, pin 9?	f	g
e. Do Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00) and do step u	-	-
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52J-H073, pin 51?	h	i
g. Does a ground exist at 52J-P105, pin 33?	j	k
h. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove RH advisory and threat warning indicator (A1-F18AC-440-300, WP022 00).		
(3) Does continuity exist from 52A-J074 indicator panel receptacle pin 6 to pin 26?	l	m
i. With FIRE warning light pressed, does continuity exist from 52A-H073 indicator panel receptacle pin 51 to pin 32?	n	o
j. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step u	-	-
k. Does continuity exist from:		
52J-P105 pin 14 to 85P-N002A pin 61		
52J-P105 pin 31 to ground?	j	p
l. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step u	-	-
m. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		

Table 5. Crossfeed Shutoff Valve Does Not Close When Left Engine FIRE Warning Light Pressed (Continued)

Procedure	No	Yes
(2) Does 28vdc exist at 52J-J074 pin 6?	q	r
n. Replace LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00) and do step u	-	-
o. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52J-H073 pin 32 to 52J-P105 pin 9 and do step u	-	-
p. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 52 (A1-F18AC-LMM-010).		
(3) Remove fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00).		
(4) Does continuity exist from:		
52P-P105 pin 9 to 5P-P071 pin 7		
52P-P105 pin 31 to 5P-P071 pin 11		
52P-P105 pin 14 to 5P-P071 pin 10		
52P-P105 pin 33 to 5P-P071 pin 12?	j	s
q. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(3) Does continuity exist from 52P-D092C pin 14 to 52J-J074 pin 6?	j	t
r. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52J-J074 pin 26 to 52J-H073 pin 51 and do step u	-	-
s. Replace fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00) and do step u	-	-
t. Isolate between CROSSFEED FUEL VLV circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step u	-	-
u. If disconnected, removed, or opened during this procedure make sure the items below are connected, installed, or closed:		
(1) LH advisory and threat warning indicator panel		
(2) RH advisory and threat warning indicator panel		
(3) Fuel crossfeed shutoff valve		

Table 5. Crossfeed Shutoff Valve Does Not Close When Left Engine FIRE Warning Light Pressed (Continued)

Procedure	No	Yes
(4) 52P-D092C		
(5) 52P-P105		
(6) 85P-N002A		
(7) Door 10R		
(8) Door 32R		
(9) Door 52		
(10) Door 53L	-	-

Table 6. Code 942 Not Displayed When Right Engine FIRE Warning Light Pressed

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.	
For component locator, refer to figure 2, WP014 00.	
Malfunction is caused by one of the items below:	
Aircraft Wiring	
Engine Fuel Shutoff Valve Motor	
No. 5 Circuit Breaker Panel Assembly	
RH Advisory and Threat Warning Indicator Panel	

Table 6. Code 942 Not Displayed When Right Engine FIRE Warning Light Pressed (Continued)



Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) Make sure R/FUEL S/O VALVE (zone A10) on no. 5 circuit breaker panel assembly is closed.		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect 5P-R070 from right engine fuel shutoff valve (right MLG wheelwell).		
(5) Does continuity exist from 5J-R070 pin 9 to 5J-R070 pin 11?	b	c
b. Do substeps below:		
(1) Open door 32R (A1-F18AC-LMM-010).		
(2) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(3) Does continuity exist from 5P-R070 pin 9 to 85P-N002A pin 60?	d	e
c. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) With right engine FIRE warning light pressed, does 28vdc exist at 5P-R070 pin 7?	f	g
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m	-	-

Table 6. Code 942 Not Displayed When Right Engine FIRE Warning Light Pressed (Continued)

Procedure	No	Yes
e. Do Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00) and do step m	-	-
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00).		
(3) With FIRE warning light pressed, does continuity exist from 52A-J074 indicator panel receptacle pin 4 to pin 7?	h	i
g. Does a ground exist at 5P-R070 pin 12?	d	j
h. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step m	-	-
i. Does continuity exist from 52J-J074 pin 4 to 5P-R070 pin 7?	d	k
j. Replace right engine fuel shutoff valve motor (A1-F18AC-460-300, WP135 00) and do step m	-	-
k. Do substeps below:		
(1) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(2) Does continuity exist from 52P-D092C pin 15 to 52A-J074 pin 7?	d	l
l. Isolate between R/FUEL S/O VALVE circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step m	-	-
m. If opened, disconnected or removed during this procedure make sure the items below are installed, connected or closed:		
(1) RH advisory and threat warning indicator panel		
(2) 5P-R070		
(3) 52P-D092C		
(4) 85P-N002A		
(5) Door 10R		
(6) Door 32R	-	-

**Table 7. Code 943 Not Displayed When Left Engine FIRE
Warning Light Pressed**

Support Equipment Required				
<p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; vertical-align: top; padding-bottom: 10px;"> <p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p> </td> <td style="width: 40%; vertical-align: top; padding-bottom: 10px;"> <p>Nomenclature</p> <p>Multimeter</p> </td> </tr> </table> <p style="text-align: center; padding: 10px 0;">Materials Required</p> <p style="text-align: center; padding: 5px 0;">None</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.</p> <p>For component locator, refer to figure 2, WP014 00.</p> <p>Malfunction is caused by one of the items below:</p> <p style="padding-left: 40px;">Aircraft Wiring Engine Fuel Shutoff Valve Motor No. 5 Circuit Breaker Panel Assembly LH Advisory and Threat Warning Indicator Panel</p>			<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>
<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>			
Procedure	No	Yes		
<div style="text-align: center; margin-bottom: 20px;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p>				

**Table 7. Code 943 Not Displayed When Left Engine FIRE
Warning Light Pressed (Continued)**

Procedure	No	Yes
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) Make sure L/FUEL S/O VALVE (zone A12) on no. 5 circuit breaker panel assembly is closed.		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect 5P-P072 from left engine fuel shutoff valve (right MLG wheelwell).		
(5) Does continuity exist from 5J-P072 pin 9 to 5J-P072 pin 11?	b	c
b. Do substeps below:		
(1) Open door 32R (A1-F18AC-LMM-010).		
(2) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(3) Does continuity exist from 5P-P072 pin 9 to 85P-N002A pin 62?	d	e
c. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) With left engine FIRE warning light pressed, does 28vdc exist at 5P-P072 pin 7?	f	g
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m	-	-
e. Do Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00) and do step m	-	-
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00).		
(3) With FIRE warning light pressed, does continuity exist from 52A-H073 indicator panel receptacle pin 50 to pin 4?	h	i
g. Does a ground exist at 5P-P072 pin 12?	d	j
h. Replace LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step m	-	-
i. Does continuity exist from 52J-H073 pin 4 to 5P-P072 pin 7?	d	k

**Table 7. Code 943 Not Displayed When Left Engine FIRE
Warning Light Pressed (Continued)**

Procedure	No	Yes
j. Replace left engine fuel shutoff valve motor (A1-F18AC-460-300, WP135 00) and do step m	-	-
k. Do substeps below:		
(1) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(2) Does continuity exist from 52P-D092C pin 13 to 52J-H073 pin 50?	d	l
l. Isolate between L/FUEL S/O VALVE circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step m	-	-
m. If opened, disconnected or removed during this procedure make sure the items below are installed, connected or closed:		
(1) LH advisory and threat warning indicator panel		
(2) 5P-P072		
(3) 52P-D092C		
(4) 85P-N002A		
(5) Door 10R		
(6) Door 32R	-	-

**Table 8. Turbine Boost Pump Test - 161924 AND UP ALSO
161353 THRU 161761 AFTER F/A-18 AFC 018**

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Power Plant and Related Systems		
Secondary Power System		

**Table 8. Turbine Boost Pump Test - 161924 AND UP ALSO
161353 THRU 161761 AFTER F/A-18 AFC 018 (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
—	External Electrical Power Source	
74D460108-1001	Fuel System Test Set	
74D460108-1003	Fuel System Test Set	
Materials Required		
None		
1. FUEL SYSTEM TEST SET HOOKUP. a. On 161353 THRU 161761, open door 46R (A1-F18AC-LMM-010). b. Hookup fuel test set cable 74D462025-1003 per substeps below: (1) On fuel system test set, remove J1 protective cap (fig 3). (2) Connect test cable P1 to J1 on test set. (3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell) (fig 2). (4) Position test set near right wing tip. c. On fuel system test set (fig 3), set switches as listed below:		

**Table 8. Turbine Boost Pump Test - 161924 AND UP ALSO
161353 THRU 161761 AFTER F/A-18 AFC 018 (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - WING S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1- closed D3 - FUEL INDICATOR- Selector knob to FEED</p> <p>d. On 74D460108-1003 test set, set switches as listed below:</p> <p>S12 - OFF S13 - ON S14 - ON S15 - OFF</p> <p>e. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>f. Set switch S15 to On.</p> <p>2. TRANSDUCER CHANNEL BIT (QA).</p> <p>a. On test set, set switch S2 to BIT. Set switch S9 to NULL and re- lease.</p> <p>b. Set switch S9 to SCALE and hold.</p> <p>c. Release switch S9.</p> <p>3. TRANSDUCER NULL. (QA)</p>	<p>D1 and D2 displays all minus signs.</p> <p>D2 displays 0000 \pm00.10.</p> <p>D2 displays 25 to 35 PSI.</p>	<p>Do table 3, WP013 02.</p> <p>Do table 3, WP013 02.</p> <p>Do table 3, WP013 02.</p>

**Table 8. Turbine Boost Pump Test - 161924 AND UP ALSO
161353 THRU 161761 AFTER F/A-18 AFC 018 (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">NOTE</p> <p>The LEFT FEED and RIGHT FEED pressure transducers are monitored for this test. If a transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will display. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
<p>a. Set switch S2 to RIGHT FEED. Record D2 display (non-nulled).</p> <p>b. Set switch S1 to LEFT FEED. Record D1 display (non-nulled).</p> <p>c. Set switch S2 to OFF.</p> <p>d. Set switch S9 to NULL and release.</p> <p>e. Set switch S1 to OFF.</p> <p>f. Set switch S2 to RIGHT FEED. Set switch S9 to NULL and release.</p> <p>g. Set switch S1 to LEFT FEED.</p> <p>4. TEST.</p> <p>a. Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p>	<p>D1 displays 00.0.</p> <p>D2 displays 000.</p>	<p>Do table 3, WP036 00.</p> <p>Do table 4, WP036 00.</p>
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> WARNING </div> <p>To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
<p>b. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do substeps below:</p>		

**Table 8. Turbine Boost Pump Test - 161924 AND UP ALSO
161353 THRU 161761 AFTER F/A-18 AFC 018 (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(1) Shut down engines (A1-F18AC-LMM-000).</p> <p>(2) Tell fire department and take required action to make area safe.</p> <p>c. Operate right and left engine at ground IDLE.</p> <p>d. Monitor D1 display.</p>	<p>D1 displays 6 PSI minimum.</p>	<ol style="list-style-type: none"> 1. Record D1 display. 2. Increase left engine RPM to 70%. 3. Record D1 display. 4. Reduce left engine RPM to ground idle. 5. If D1 display did not change when engine RPM changed, replace left boost inlet pressure transducer (A1-F18AC-460-300, WP069 00) or replace defective wiring and repeat test. 6. If D1 display did change when engine RPM changed, remove no. 2 fuel tank engine fuel turbine boost pump. Inspect for blocked motive flow tubing, if tubing is good, replace no. 2 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP133 03).

Table 8. Turbine Boost Pump Test - 161924 AND UP ALSO 161353 THRU 161761 AFTER F/A-18 AFC 018 (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>e. Monitor D2 display.</p> <p>f. Shut down engines (A1-F18AC-LMM-000).</p> <p>5. FINAL.</p> <p>a. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>b. Disconnect fuel system test set.</p> <p>c. On 161924 THRU 161944, close door 46R (A1-F18AC-LMM-010).</p>	<p>D2 displays 6 PSI minimum.</p>	<ol style="list-style-type: none"> Record D2 display. Increase right engine RPM to 70%. Record D2 display. Reduce right engine RPM to ground idle. If D2 display did not change when engine RPM changed, replace right boost inlet pressure transducer (A1-F18AC-460-300, WP070 00) or replace defective wiring and repeat test. If D2 display did change when engine RPM changed, remove no. 3 fuel tank engine fuel turbine boost pump. Inspect for blocked motive flow tubing, if tubing is good, replace no. 3 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP134 03).

Table 9. Code 942


Support Equipment Required				
<p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; vertical-align: top; padding-bottom: 10px;"> <p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p> </td> <td style="width: 40%; vertical-align: top; padding-bottom: 10px;"> <p>Nomenclature</p> <p>Multimeter</p> </td> </tr> </table> <p style="text-align: center; padding: 10px 0;">Materials Required</p> <p style="text-align: center; padding: 5px 0;">None</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.</p> <p>For component locator, refer to figure 2, WP014 00.</p> <p>Malfunction is caused by one of the items below:</p> <ul style="list-style-type: none"> Aircraft Wiring No. 5 Circuit Breaker Panel Assembly RH Advisory and Threat Warning Indicator Panel Right Engine Fuel Shutoff Valve Motor 			<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>
<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>			
Procedure	No	Yes		
<div style="text-align: center; margin-bottom: 20px;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p>				

Table 9. Code 942 (Continued)

Procedure	No	Yes
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) On no. 5 circuit breaker panel assembly (door 10R), make sure R/FUEL S/O VALVE circuit breaker (zone A10) is closed.		
(3) On RH advisory and threat warning indicator panel, make sure FIRE warning light is not pressed.		
(4) Turn off electrical power (A1-F18AC-LMM-000).		
(5) Open door 32R (A1-F18AC-LMM-010).		
(6) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(7) Does a ground exist at 85P-N002A pin 60?	b	c
b. Do substeps below:		
(1) Disconnect 5P-R070 from right engine fuel shutoff valve.		
(2) Does continuity exist from 5P-R070 pin 9 to 85P-N002A pin 60?	d	e
c. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step m	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m	-	-
e. Does a ground exist at 5P-R070 pin 11?	d	f
f. Does a ground exist at 5P-R070 pin 12?	d	g
g. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Does 28vdc exist at 5P-R070 pin 3?	h	i
h. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52J-D092C pin 15?	j	k

Table 9. Code 942 (Continued)

Procedure	No	Yes
i. Replace right engine fuel shutoff valve motor (A1-F18AC-460-300, WP135 00) and do step m	-	-
j. Isolate between 5CBD064 R/FUEL S/O VALVE circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step m	-	-
k. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00).		
(3) Does continuity exist from:		
52J-J074 pin 7 to 52P-D092C pin 15		
52J-J074 pin 17 to 5P-R070 pin 3?	d	l
l. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step m	-	-
m. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) RH advisory and threat warning indicator panel		
(2) 5P-R070		
(3) 52P-D092C		
(4) 85P-N002A		
(5) Door 10R		
(6) Door 32R	-	-

Table 10. Code 943

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.		
For component locator, refer to figure 2, WP014 00.		
Malfunction is caused by one of the items below:		
Aircraft Wiring Left Engine Fuel Shutoff Valve Motor LH Advisory and Threat Warning Indicator Panel No. 5 Circuit Breaker Panel Assembly		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/ relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <p>a. Do substeps below:</p> <p>(1) Open door 10R (A1-F18AC-LMM-010).</p>		


Table 10. Code 943 (Continued)

Procedure	No	Yes
(2) On no. 5 circuit breaker panel assembly (door 10R), make sure L/FUEL S/O VALVE circuit breaker (zone A12) is closed.		
(3) On LH advisory and threat warning indicator panel, make sure FIRE warning light is not pressed.		
(4) Turn off electrical power (A1-F18AC-LMM-000).		
(5) Open door 32R (A1-F18AC-LMM-010).		
(6) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(7) Does a ground exist at 85P-N002A pin 62?	b	c
b. Do substeps below:		
(1) Disconnect 5P-P072 from left engine fuel shutoff valve.		
(2) Does continuity exist from 5P-P072 pin 9 to 85P-N002A pin 62?	d	e
c. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step m	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step m	-	-
e. Does a ground exist at 5P-P072 pin 11?	d	f
f. Does a ground exist at 5P-P072 pin 12?	d	g
g. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Does 28vdc exist at 5P-P072 pin 3?	h	i
h. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52J-D092C pin 13?	j	k

Table 10. Code 943 (Continued)

Procedure	No	Yes
i. Replace left engine fuel shutoff valve motor (A1-F18AC-460-300, WP135 00) and do step m	-	-
j. Isolate between 5CBD066 L/FUEL S/O VALVE circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step m	-	-
k. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00).		
(3) Does continuity exist from:		
52J-H073 pin 50 to 52P-D092C pin 13		
52J-H073 pin 17 to 5P-P072 pin 3?	d	l
l. Replace LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00) and do step m	-	-
m. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) LH advisory and threat warning indicator panel		
(2) 5P-P072		
(3) 52P-D092C		
(4) 85P-N002A		
(5) Door 10R		
(6) Door 32R	-	-

**Table 11. Code 944 - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18
IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070**

Support Equipment Required				
<p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; vertical-align: top; padding-bottom: 10px;"> <p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p> </td> <td style="width: 40%; vertical-align: top; padding-bottom: 10px;"> <p>Nomenclature</p> <p>Multimeter</p> </td> </tr> </table> <p style="text-align: center; padding: 10px 0;">Materials Required</p> <p style="text-align: center; padding: 5px 0;">None</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.</p> <p>For component locator, refer to figure 2, WP014 00.</p> <p>Malfunction is caused by one of the items below:</p> <ul style="list-style-type: none"> Aircraft Wiring Fuel Crossfeed Shutoff Valve No. 5 Circuit Breaker Panel Assembly RH Advisory and Threat Warning Indicator Panel LH Advisory and Threat Warning Indicator Panel 			<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>
<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>			
Procedure	No	Yes		
<div style="text-align: center; margin-bottom: 20px;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p>				

**Table 11. Code 944 - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18
IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070 (Continued)**

Procedure	No	Yes
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) On no. 5 circuit breaker panel assembly (door 10R), make sure CROSSFEED FUEL VLV circuit breaker (zone A11) is closed.		
(3) Open door 32R (A1-F18AC-LMM-010).		
(4) Turn off electrical power (A1-F18AC-LMM-000).		
(5) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(6) Does ground exist at 85P-N002A pin 61?	b	c
b. Do substeps below:		
(1) Open door 52 (A1-F18AC-LMM-010).		
(2) Disconnect 52P-P102 (door 52).		
(3) On 52J-R102, ground pins 38 and 57.		
(4) Connect 52J-R102 pin 10 to 52P-R102 pin 10 and 52J-R102 pin 11 to 52P-R102 pin 11.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does ground exist at 85P-N002A pin 61?	d	e
c. Do substeps below:		
(1) Open door 52 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-P071 from fuel crossfeed shutoff valve (door 52).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-P071 pin 7?	f	g
d. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-N118B from no. 4 relay panel assembly (door 32R).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52P-N118B pin 9?	h	i
e. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step u	-	-

**Table 11. Code 944 - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18
IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070 (Continued)**

Procedure	No	Yes
f. Does 28vdc exist at 5P-P071 pin 3?	d	j
g. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step u	-	-
h. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52J-D092C pin 14?	k	l
i. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 5P-P071 from fuel crossfeed shutoff valve (door 52).		
(3) Does continuity exist from:		
5P-P071 pin 3 to 52P-N118B pin 17		
5P-P071 pin 7 to 52P-N118B pin 33		
5P-P071 pin 10 to 85P-N002A pin 61		
5P-P071 pin 11 to ground		
5P-P071 pin 12 to ground?	m	n
j. Does continuity exist from:		
5P-P071 pin 10 to 85P-N002A pin 61		
5P-P071 pin 11 to ground?	m	e
k. Isolate between 5CBD065 CROSSFEED FUEL VLV circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step u	-	-
l. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00).		
(3) Does continuity exist from 52A-J074 indicator panel receptacle pin 6 to pin 26?	o	p
m. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step u	-	-
n. Replace fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00) and do step u	-	-

**Table 11. Code 944 - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18
IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070 (Continued)**

Procedure	No	Yes
o. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step u	-	-
p. Does continuity exist from 52P-D092C pin 14 to 52J-J074 pin 6?	m	q
q. Do substeps below:		
(1) Remove LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00).		
(2) Does continuity exist from 52J-J074 pin 26 to 52J-H073 pin 51?	m	r
r. Does continuity exist from 52A-H073 indicator panel receptacle pin 51 to pin 26?	s	t
s. Replace LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00) and do step u	-	-
t. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52J-H073 pin 26 to 52P-N118B pin 9 and do step u	-	-
u. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) 5P-P071		
(2) 52P-D092C		
(3) 52P-N118B		
(4) 52P-R102		
(5) 85P-N002A		
(6) RH advisory and threat warning indicator panel		
(7) LH advisory and threat warning indicator panel		
(8) Door 10R		
(9) Door 32R		
(10) Door 52	-	-

Table 12. Code 944 Not Displayed - 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 070


Support Equipment Required				
<p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; vertical-align: top; padding-bottom: 10px;"> <p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p> </td> <td style="width: 40%; vertical-align: top; padding-bottom: 10px;"> <p>Nomenclature</p> <p>Multimeter</p> </td> </tr> </table> <p style="text-align: center; padding: 10px 0;">Materials Required</p> <p style="text-align: center; padding: 5px 0;">None</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.</p> <p>For component locator, refer to figure 2, WP014 00.</p> <p>Malfunction is caused by one of the items below:</p> <ul style="list-style-type: none"> Aircraft Wiring Fuel Crossfeed Shutoff Valve No. 5 Circuit Breaker Panel Assembly LH Advisory and Threat Warning Indicator Panel RH Advisory and Threat Warning Indicator Panel 			<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>
<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>			
Procedure	No	Yes		
<div style="text-align: center; margin-bottom: 20px;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center; padding: 10px 0;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 				

Table 12. Code 944 Not Displayed - 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 070 (Continued)

Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Open door 10R (A1-F18AC-LMM-010).</p> <p>(2) Make sure CROSSFEED FUEL VLV (zone A11) on no. 5 circuit breaker panel assembly is closed.</p> <p>(3) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(4) Open door 32R (A1-F18AC-LMM-010).</p> <p>(5) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.</p> <p>(6) Does a ground exist at 85P-N002A pin 61?</p>	c	b
<p>b. Do substeps below:</p> <p>(1) Open door 53L (A1-F18AC-LMM-010).</p> <p>(2) Disconnect 52P-P105 (door 53L).</p> <p>(3) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(4) With FIRE warning light not pressed, does 28vdc exist at 52J-P105 pin 25?</p>	d	m
<p>c. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step r</p>	-	-
<p>d. Do substeps below:</p> <p>(1) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(2) Remove door 32R (A1-F18AC-LMM-010).</p> <p>(3) Disconnect 52P-N118B from no. 4 relay panel assembly.</p> <p>(4) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(5) Does 28vdc exist at 52P-N118B pin 9?</p>	e	f
<p>e. Do substeps below:</p> <p>(1) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(2) Remove LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00).</p>		

Table 12. Code 944 Not Displayed - 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 070 (Continued)

Procedure	No	Yes
(3) With FIRE warning light not pressed, does continuity exist from 52A-H073 indicator panel receptacle pin 51 to pin 26?	g	h
f. Does continuity exist from:		
52J-P105 pin 25 to 52P-N118B pin 17		
52J-P105 pin 33 to ground		
52J-P105 pin 31 to ground		
52J-P105 pin 14 to 85P-N002A pin 61	i	j
g. Replace LH advisory and threat warning indicator panel (A1-F18AC-440-300, WP021 00) and do step r	-	-
h. Does continuity exist from 52J-H073 pin 26 to 52P-N118B pin 9?	i	k
i. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step r	-	-
j. On no. 4 relay panel assembly, does continuity exist 52J-N118B pin 9 to 52J-N118B pin 17?	l	m
k. Do substeps below:		
(1) Remove RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00).		
(2) With FIRE warning light not pressed, does continuity exist from 52A-J074 indicator panel receptacle pin 6 to pin 26?	n	o
l. Isolate between right engine fuel pressure relay and no. 4 relay panel assembly wiring (A1-F18AC-420-300, WP037 00) and do step r	-	-
m. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 53L (A1-F18AC-LMM-010).		
(3) Remove fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00).		
(4) Does continuity exist from:		
52P-P105 pin 25 to 5P-P071 pin 3		
52P-P105 pin 14 to 5P-P071 pin 10		
52P-P105 pin 31 to 5P-P071 pin 11		
52P-P105 pin 33 to 5P-P071 pin 12?	i	p
n. Replace RH advisory and threat warning indicator panel (A1-F18AC-440-300, WP022 00) and do step r	-	-

Table 12. Code 944 Not Displayed - 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 070 (Continued)

Procedure	No	Yes
o. Do substeps below:		
(1) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(2) Does continuity exist from:		
52P-D092C pin 14 to 52J-J074 pin 6		
52J-H073 pin 51 to 52J-J074 pin 26?	i	q
p. Replace fuel crossfeed shutoff valve (A1-F18AC-460-300, WP136 00) and do step r	-	-
q. Isolate between CROSSFEED FUEL VLV circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step r	-	-
r. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) RH advisory and threat warning indicator panel		
(2) LH advisory and threat warning indicator panel		
(3) Fuel crossfeed shutoff valve		
(4) 52P-D092C		
(5) 52P-N118B		
(6) 52P-P105		
(7) 85P-N002A		
(8) Door 10R		
(9) Door 32R		
(10) Door 53L	-	-

Table 13. R BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.		
For component locator, refer to A1-F18AC-460-500, WP008 00.		
Malfunction is caused by one of the items below:		
Aircraft Wiring Fuel Boost Pressure Switch Motive Flow/Boost Pump No. 4 Relay Panel Assembly		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 13. R BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070 (Continued)

Procedure	No	Yes
a. Do substeps below: (1) Open doors 32R and 52 (A1-F18AC-LMM-010). (2) Turn off electrical power (A1-F18AC-LMM-000). (3) Disconnect 52P-R102 (door 52). (4) On 52J-R102, ground pin 38. (5) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612. (6) Turn on electrical power (A1-F18AC-LMM-000). (7) Does a ground exist at 85P-N002C pin 9?	b	c
b. Do substeps below: (1) Turn off electrical power (A1-F18AC-LMM-000). (2) Disconnect 52P-N118B from no. 4 relay panel assembly (door 32R). (3) Does continuity exist from 52P-N118B pin 66 to 85P-N002C pin 9?	d	e
c. Do substeps below: (1) Turn off electrical power (A1-F18AC-LMM-000). (2) Connect 85P-N002C to Signal Data Converter CV-3493/ASM-612 (door 32R). (3) Turn on electrical power (A1-F18AC-LMM-000). (4) Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000). (5) Is R BOOST LO displayed?	f	g
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step k	-	-
e. Does a ground exist at 52P-N118B pin 63?	h	i
f. Do substeps below: (1) Turn off electrical power (A1-F18AC-LMM-000). (2) Open door 53R (A1-F18AC-LMM-010).		

Table 13. R BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070 (Continued)

Procedure	No	Yes
(3) Disconnect 5P-R114 from right fuel boost pressure switch.		
(4) Does continuity exist from:		
5P-R114 pin A to 52P-R102 pin 38		
5P-R114 pin B to ground?	d	j
g. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200,WP003 00) and do step k	-	-
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-N118B pin 63 to 52J-R102 pin 38 and do step k	-	-
i. Isolate between 5K-N155 right engine fuel pressure relay and no. 4 relay panel assembly wiring (A1-F18AC-420-300, WP037 00) and do step k	-	-
j. Replace right fuel boost pressure switch (A1-F18AC-460-300, WP139 00) and do step k. Start right engine (A1-F18AC-LMM-000). If R BOOST LO continues to display, replace right motive flow/boost pump (A1-F18AC-460-300, WP138 00)	-	-
k. . If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) 5P-R114		
(2) 52P-N118B		
(3) 52P-R102		
(4) 85P-N002C		
(5) Door 32R		
(6) Door 52		
(7) Door 53R	-	-

**Table 14. L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924
BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118
AFTER F/A-18 AFC 070**

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

260-6XLP
(AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.

For component locator, refer to A1-F18AC-460-500, WP008 00.

Malfunction is caused by one of the items below:

Aircraft Wiring
Fuel Boost Pressure Switch
Motive Flow/Boost Pump
No. 4 Relay Panel Assembly

Procedure

No

Yes

CAUTION

To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.

NOTE

The question used in logic tree "Does continuity exist?" means to test for the items listed below:

1. Pin to pin test per procedural step.
2. Shorts to ground.
3. Shorts between surrounding pins on connectors.
4. Shorts between shield and conductors.
5. Shield continuity.

**Table 14. L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924
BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118
AFTER F/A-18 AFC 070 (Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Open doors 32R and 52 (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-R102 (door 52).		
(4) On 52J-R102, ground pin 57.		
(5) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(6) Turn on electrical power (A1-F18AC-LMM-000).		
(7) Does a ground exist at 85P-N002C pin 8?	b	c
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-N118B from no. 4 relay panel assembly (door 32R).		
(3) Does continuity exist from 52P-N118B pin 64 to 85P-N002C pin 8?	d	e
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Connect 85P-N002C to Signal Data Converter CV-3493/ASM-612 (door 32R).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Set up cockpit Digital Display Indicator IP-1317 () for displays (A1-F18AC-LMM-000).		
(5) Is L BOOST LO displayed?	f	g
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step k	-	-
e. Does a ground exist at 52P-N118B pin 56?	h	i
f. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 53L (A1-F18AC-LMM-010).		

**Table 14. L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924
BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118
AFTER F/A-18 AFC 070 (Continued)**

Procedure	No	Yes
(3) Disconnect 5P-P113 from left fuel boost pressure switch.		
(4) Does continuity exist from:		
5P-P113 pin A to 52P-R102 pin 57		
5P-P113 pin B to ground?	d	j
g. . Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step k	-	-
h. . Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-N118B pin 56 to 52J-R102 pin 57 and do step k	-	-
i. Isolate between 5K-N154 left engine fuel pressure relay and no. 4 relay panel assembly wiring (A1-F18AC-420-300, WP037 00) and do step k	-	-
j. Do substeps below:		
(1) Replace left fuel boost pressure switch (A1-F18AC-460-300, WP139 00) and do step k.		
(2) Start left engine (A1-F18AC-LMM-000).		
(3) On 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 18, if L BOOST LO continues to display, do turbine boost pump test, table 8 (this WP).		
(4) If L BOOST LO continues to display, replace left motive flow/boost pump (A1-F18AC-460-300, WP138 00)	-	-
k. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) 5P-P113		
(2) 52P-N118B		
(3) 52P-R102		
(4) 85P-N002C		
(5) Door 32R		
(6) Door 52		
(7) Door 53L	-	-

Table 15. R and L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070


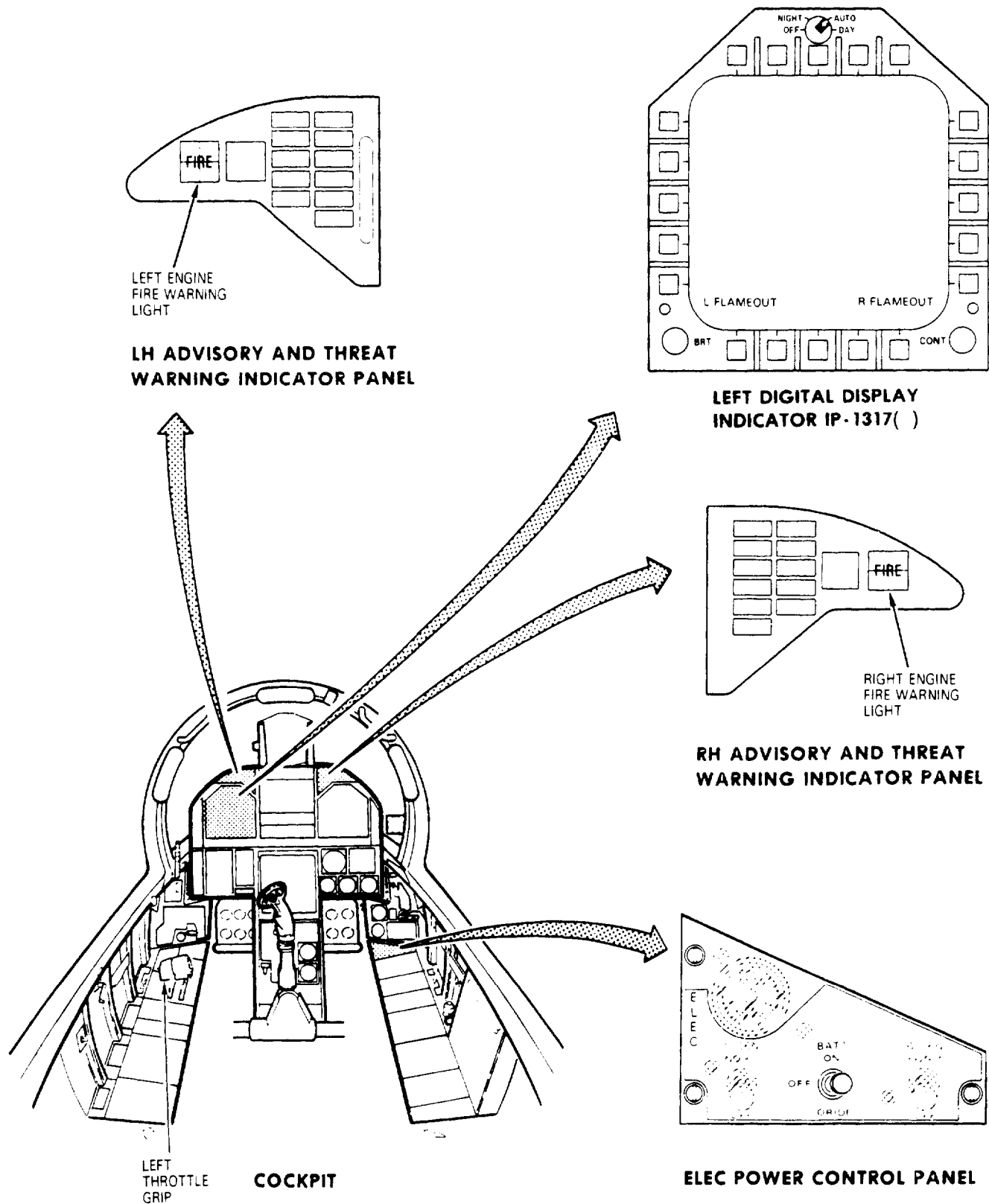
Support Equipment Required				
<p>NOTE</p> <p>Alternate item type designation or part numbers are listed in parentheses.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; vertical-align: top; padding-bottom: 10px;"> <p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p> </td> <td style="width: 40%; vertical-align: top; padding-bottom: 10px;"> <p>Nomenclature</p> <p>Multimeter</p> </td> </tr> </table>			<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>
<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>			
<p>Materials Required</p> <p>None</p>				
<p>NOTE</p> <p>Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used as an aid when doing this procedure.</p> <p>For component locator, refer to A1-F18AC-460-500, WP008 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring No. 4 Relay Panel Assembly No. 7 Circuit Breaker/Relay Panel Assembly</p>				
Procedure	No	Yes		
<div style="text-align: center; margin-bottom: 20px;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p>				

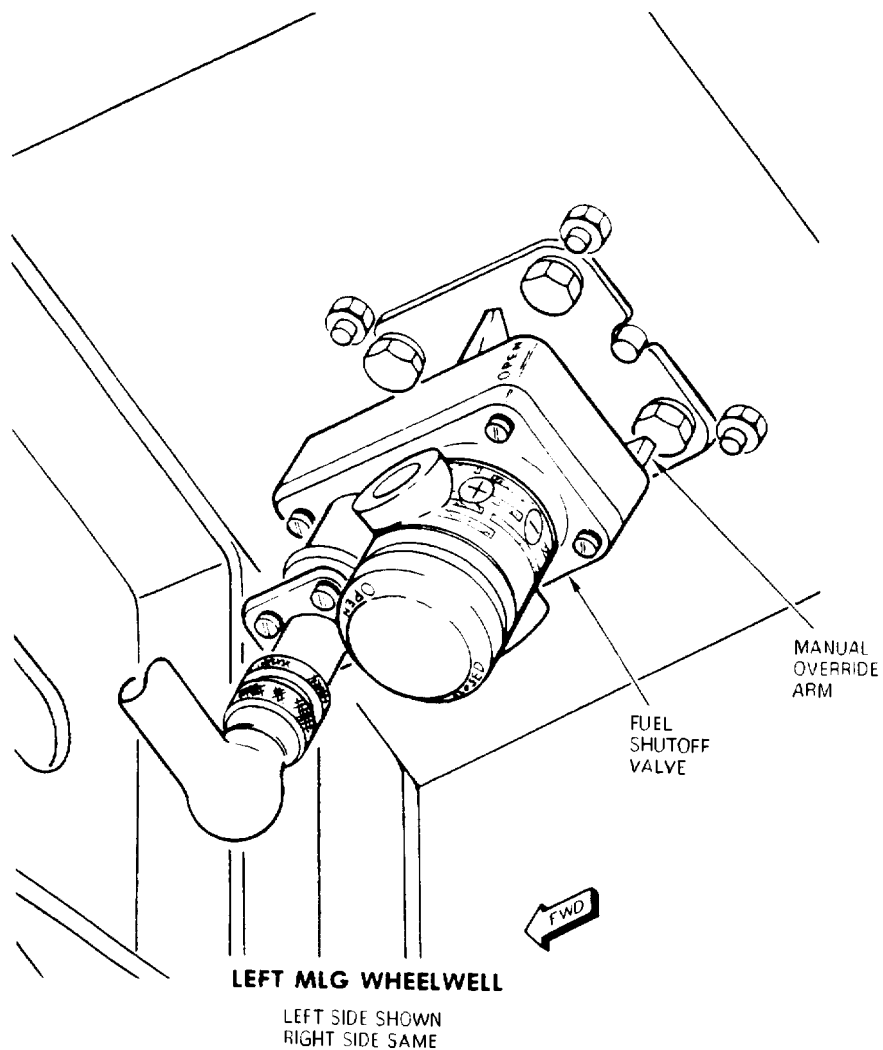
Table 15. R and L BOOST LO Displayed - 163119 AND UP, 161353 THRU 161924 BEFORE F/A-18 IAFC 056, ALSO 161353 THRU 163118 AFTER F/A-18 AFC 070 (Continued)

Procedure	No	Yes
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 7 circuit breaker/relay panel assembly (door 10L), make sure FUEL PRESS circuit breaker (zone B1) is closed.		
(3) Open door 32R (A1-F18AC-LMM-010).		
(4) Turn off electrical power (A1-F18AC-LMM-000).		
(5) Disconnect 52P-N118B from no. 4 relay panel assembly (door 32R).		
(6) Turn on electrical power (A1-F18AC-LMM-000).		
(7) Does 28vdc exist at 52P-N118B pin 57?	b	c
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52J-C057D pin 101?	d	e
c. Isolate between 5K-N154 left engine fuel pressure relay, 5K-N155 right engine fuel pressure relay and no. 4 relay panel assembly wiring (A1-F18AC-420-300, WP037 00) and do step f	-	-
d. Isolate between 5CBC153 FUEL PRESS circuit breaker and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step f	-	-
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-C057D pin 101 to 52P-N118B pin 57 and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) 52P-N118B		
(2) 52P-C057D		
(3) Door 10L		
(4) Door 32R	-	-



12070101

Figure 1. Engine Fuel Shutoff Leak Test Component Locator (Sheet 1 of 3)

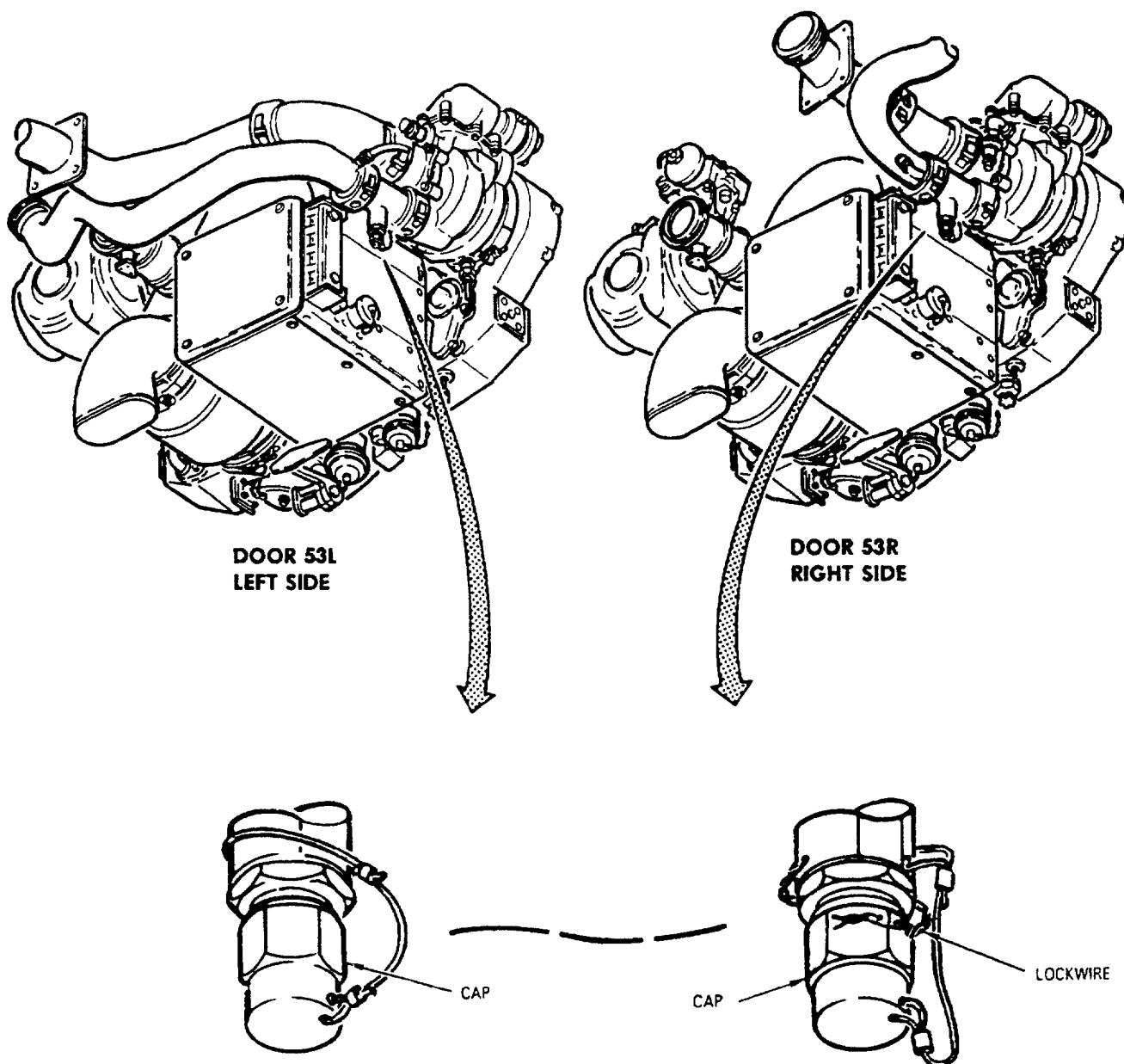


12070102

Figure 1. Engine Fuel Shutoff Leak Test Component Locator (Sheet 2)

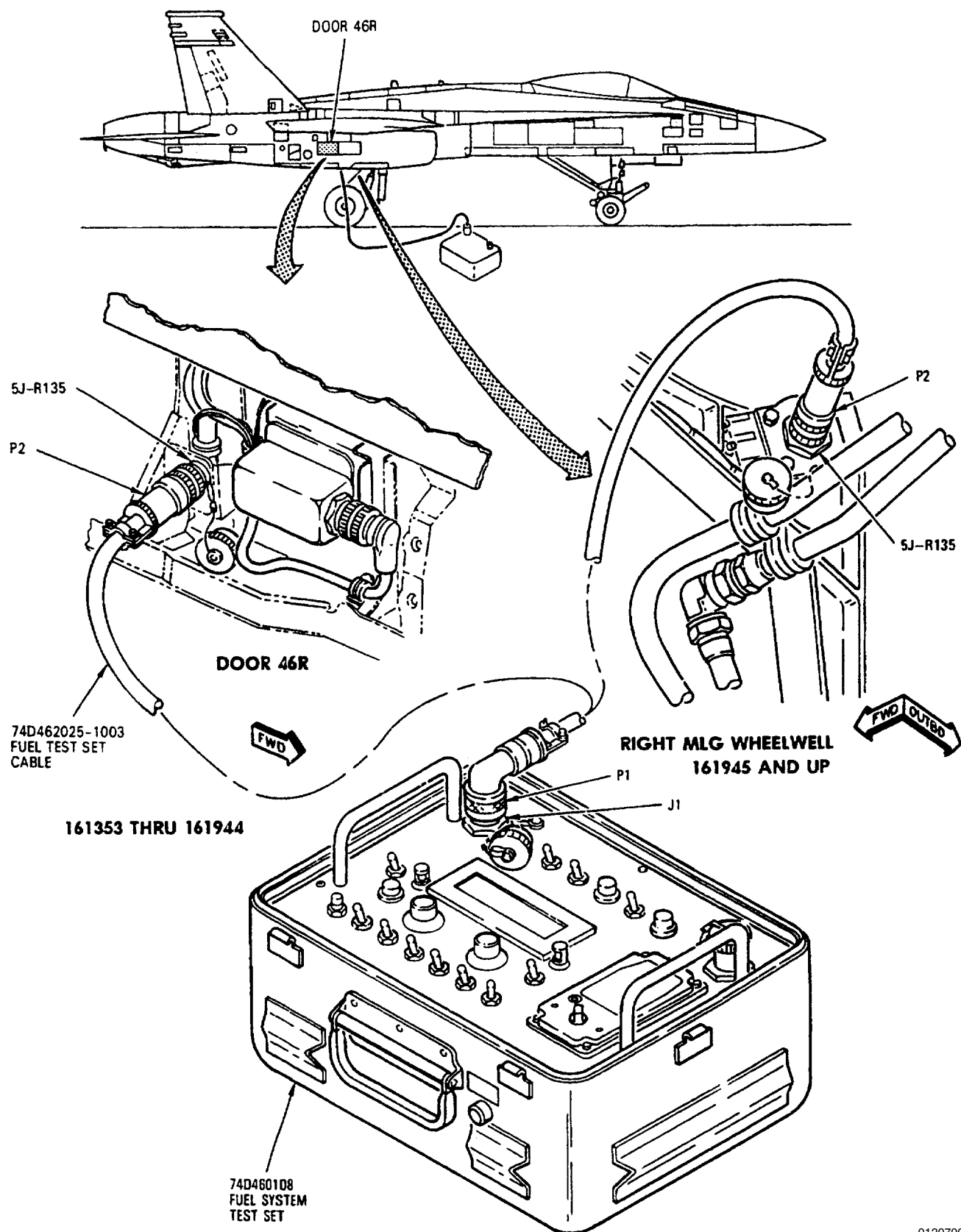
LEGEND

FOR PARTS DATA INFORMATION
REFER TO A1-F18AC-460-300,
WP135 00



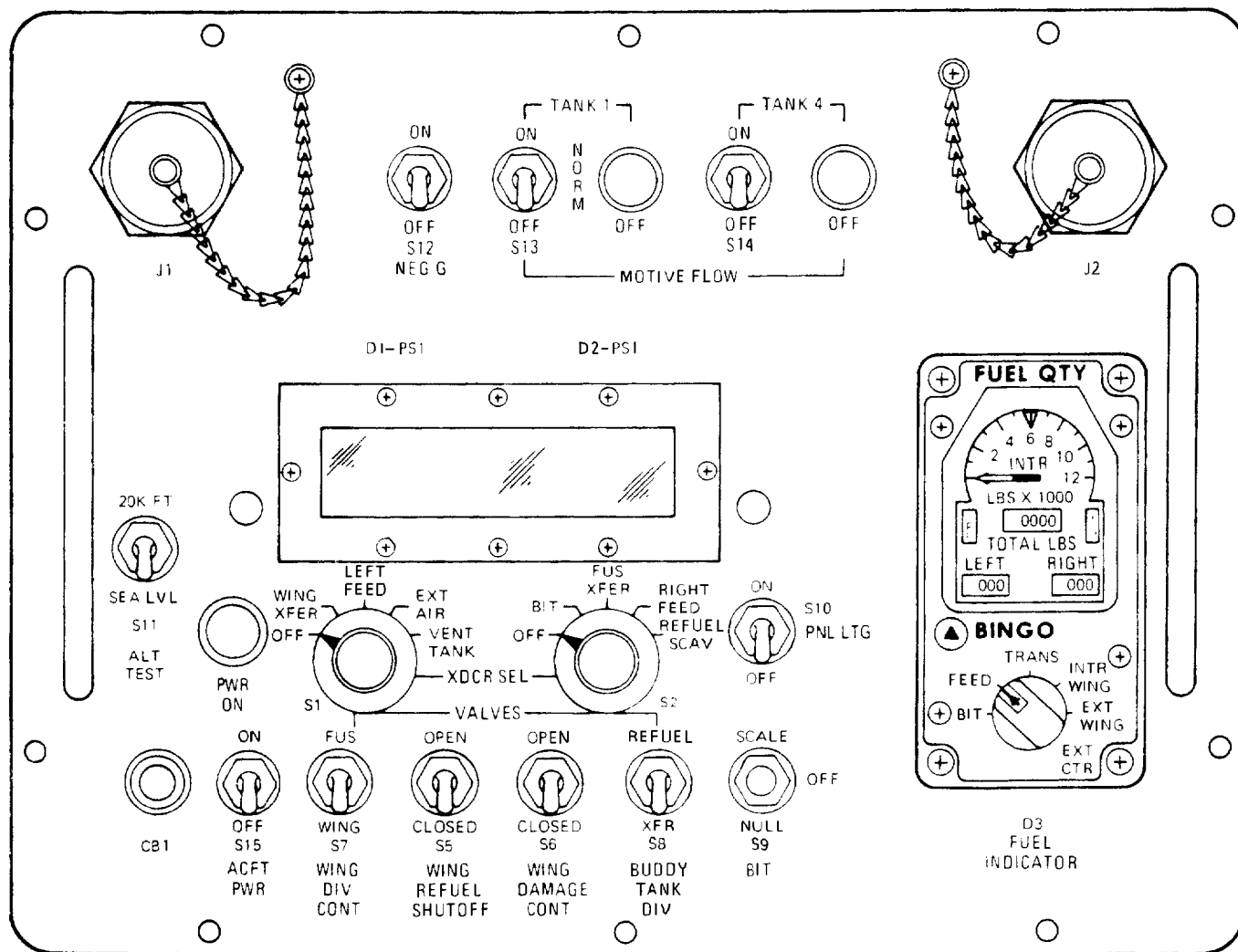
12070103

Figure 1. Engine Fuel Shutoff Leak Test Component Locator (Sheet 3)



01207002

Figure 2. Fuel System Test Set Hookup



FUEL SYSTEM TEST SET 74D460108-1003

A

Figure 3. Fuel System Test Set Controls and Displays

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE**TESTING AND TROUBLESHOOTING****TEST****INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM**

**EFFECTIVITY: 161353 THRU 161761 BEFORE F/A-18 AFC 18, 39 AND 53, ALSO
161353 THRU 161519 BEFORE F/A-18 AFC 41**

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000
Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel Level Control Selector Valve Hookup, Figure 2	22
Fuel System Test Set Controls and Displays, Figure 5	28
Fuel System Test Set Hookup, 161353 THRU 161359, Figure 3	25
Fuel System Test Set Hookup, 161360 AND UP, Figure 4	26
Internal Fuel Transfer and Engine Fuel Supply System Test, Table 1	2
Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator, Figure 1	18

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Oct 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Tanks 2 and 3 (ECP MDA-F/A-18-00077C1/C2)	1 Oct 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

NOTE

Internal Fuel Transfer System and Engine Fuel Supply System Schematics (A1-F18AC-460-500, WP007 00 and WP008 00), may be used while doing this test.

2. The internal transfer and engine fuel supply system test is made up of a right and left internal transfer and engine fuel supply test. The tests are used to verify that systems are functioning correctly. The test must be done in sequence and any abnormal indication must be corrected before going to next step.

1. INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM TEST.

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Power Plant and Related Systems		
Secondary Power System		
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1001 or 74D460108-1003	Fuel System Test Set	
74D460125-1001 (161353 THRU 161359 (LAND BASE ONLY))	Special Purpose Fuel Test Set Cable	
—	External Electrical Power Source	
MS28741-4-720	Nonmetallic Hose Assembly (Test Hose)	
7M637BD-4D	Nipple (installs on end of test hose)	
Materials Required		
None		
NOTE		
If this test is being done to troubleshoot a transfer failure, first do a transfer leak test (A1-F18AC-460-200, WP012 02). If aircraft passes leak test, continue this test.		
1. FUEL LEVEL CONTROL SELECTOR VALVE HOOKUP.		
a. Make sure electrical power is not applied (A1-F18AC-LMM-000).		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>b. Position safety container under tube (1, fig 2, detail A) to catch residual fuel.</p>		
<p align="center">NOTE</p> <p align="center">The motive flow tube can be hooked up as shown in Figure 2, Detail B or Figure 2, Detail C. If hooking up motive flow tube per Detail C, a hose assembly must be made.</p>		
<p>c. If using test hose, continue to step d. Hook up motive flow tube (1) per substeps below:</p> <p>(1) Remove plug (2) and cap (4, detail A).</p> <p>(2) Loosen nut (5).</p> <p>(3) Rotate elbow (3) and connect tube (1, detail B).</p> <p>(4) Tighten nut (5).</p> <p>d. Do substeps below:</p> <p>(1) Remove plug (2) and cap (4), Figure 2, Detail A.</p> <p>(2) Install 7M637BD-4D nipple (1A, detail C) on one end of test hose. Install this end of hose to motive flow tube (1).</p> <p>(3) Install opposite end of test hose to elbow (3).</p>		
<p>2. PREPARATION. (QA)</p>		
<p align="center">NOTE</p> <p align="center">Defueling is required to empty the wing fuel tanks and to get the fuel amount below the starting amount to allow for fuel increase when verifying refuel and transfer system tubing and components in later steps.</p>		
<p>a. Defuel aircraft to 2500 LBS (A1-F18AC-PCM-000). If wing tanks are not empty, continue to defuel until wing tanks are empty.</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
b. Press and hold TK2 V POS and TK3 V POS lights on FUEL CHECK PANEL (door 8, figure 1).	Both lights come on.	If both lights are not on, do table 1 (WP013 00). If one light is not on, replace light (A1-F18AC-460-300, WP046 00). If light still does not come on, replace or repair FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).
c. Release TK2 V POS and TK3 V POS lights.	Both lights go out.	Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP110 00).
d. Set and hold TK INTCON V CHK switch to CHK.	1. TK2 V POS light remains out (verifying no. 2 tank pressure operated interconnect valve is open). 2. TK3 V POS light remains out (verifying no. 3 tank pressure operated interconnect valve is open).	1. Replace no. 2 tank pressure operated interconnect valve (A1-F18AC-460-300, WP110 00). 2. Replace no. 3 tank pressure operated interconnect valve (A1-F18AC-460-300, WP114 00).
e. Release TK INTCON V CHK switch.		
NOTE		
Refuel system must master precheck and fuel quantity gaging system must pass BIT to prevent wrong test results. These tests are verified during refueling.		
f. Hookup refueling equipment. Start refueling and verify aircraft pre-check (A1-F18AC-PCM-000).	In door 8, FUEL FLOW INDICATOR stops rotating within 45 seconds.	Do Refuel/Defuel System Pressure Test (Internal Tanks), WP003 00, Table 2.
NOTE		
Step below verifies transfer components and tubing are good. This is done using re-fuel pressure.		
g. While aircraft is in precheck, on fuel level control selector valve (nose wheelwell, left side), push MOTIVE FLOW button down.	In door 8, FUEL FLOW INDICATOR stops rotating within 45 seconds.	Do Transfer Leak Test, WP012 02, Table 1.
h. On fuel level control selector valve, pull up MOTIVE FLOW button.		
i. In door 8, rotate master pre-check handle to DOWN OFF.		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>j. Refuel aircraft using electrical power (A1-F18AC-PCM-000) to 4000 LB (JP5) or 3600 LB (JP4).</p> <p>k. Disconnect refueling equipment (A1-F18AC-PCM-000).</p> <p>l. Turn off external electrical power (A1-F18AC-LMM-000).</p>		
<p>NOTE</p> <p>Opening the FUEL LOW LVL WRN circuit breaker is required to prevent diverter valve from shifting automatically to fuselage position when either feed tank is low level warning (800 +100 lb). Opening the no. 1 tank transfer circuit breaker allows no. 1 tank to continually transfer.</p>		
<p>m. Do substeps below:</p> <p>(1) Open door 10L (A1-F18AC-LMM-010).</p> <p>(2) On no. 8 circuit breaker/relay panel assembly open FUEL LOW LVL WRN circuit breaker (fig 1).</p> <p>(3) On 161520 THRU 161761 on no. 7 circuit breaker/relay panel assembly (door 10L), open TANK NO. 1 TRANSFER circuit breaker (fig 1).</p> <p>n. Remove doors 141L and 141R (A1-F18AC-LMM-010).</p> <p>o. Set controls as listed below (fig 1):</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
Individual tank precheck valve (doors 141 L and R)	T1 handle T2 handle RW handle LW handle T3 handle T4 handle	up down down down down up
Fuel level control valve (NLG wheelwell)	MOTIVE FLOW button SHUTOFF TANK NO. 1 SHUTOFF TANK NO. 4	down up up
3. FUEL SYSTEM TEST SET HOOKUP. a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010). b. Hookup fuel test set cable 74D462025-1003 per substeps below: (1) On fuel system test set, remove J1 protective cap (fig 3 or 4). (2) Connect test cable P1 to J1 on test set. (3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right NLG wheelwell). (4) Position test set near right wing tip.		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck, this hookup is limited to land based aircraft only.</p> <p>c. On 161353 THRU 161359 carrier based aircraft, the FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per sub-steps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 3).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 4).</p> <p>(2) Connect test cable P1 to J2 on test set.</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 5), set switches as listed below:</p> <p>S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICATOR- Selector knob to FEED</p> <p>f. On 74D460108-1003 test set, set switches per substep below:</p> <p>S12 - OFF S13 - NORM S14 - ON S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>i. On test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p>	<p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Replace test set.</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle. m. Release D3 FUEL INDICATOR selector knob. 4. TRANSDUCER CHANNEL BIT. (QA) a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release. b. Set switch S9 to SCALE and hold. c. Release switch S9. 5. TRANSDUCER NULL. (QA)	Counters and needle do not hang up. LEFT counters moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTR needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving. passes test, replace test set. Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counters return without stopping or jerking. D2 displays 000 \pm 00.1. D2 displays 25 to 35 PSI.	Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1 WP024 00. If aircraft Replace test set. Do table 3, WP013 02. Do table 3, WP013 02.
<p align="center">NOTE</p> <p>The WING XFER, FUS XFER, LEFT FEED and RIGHT FEED pressure transducers are monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to FUS XFER. Record D2 display (non-nulled). b. Set switch S2 to RIGHT FEED. Record D2 display (non-nulled). c. Set switch S1 to WING XFER. Record D1 display (non-nulled). d. Set switch S1 to LEFT FEED. Record D1 display (non-nulled).		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>e. Set switch S2 to OFF.</p> <p>f. Set switch S9 to D1 NULL and release.</p> <p>g. Set switch S1 to WING XFER. Set switch S9 to NULL and release.</p> <p>h. Set switch S1 to OFF.</p> <p>i. Set switch S2 to FUS XFER. Set switch S9 to NULL and release.</p> <p>j. Set switch S2 to RIGHT FEED. Set switch S9 to NULL and release.</p> <p>6. RIGHT INTERNAL TRANSFER AND ENGINE FEED TEST. (QA)</p> <p>a. Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p> <p>b. On fuel system test set (fig 5), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - WING XFER S2 - FUS XFER S5 - CLOSED S6 - CLOSED S7 - WING S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - closed D3 - FUEL INDICATOR- Selector knob to FEED</p> <p>c. On 74D460108-1003 test set, set switches as listed below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - NORM S14 - ON S15 - ON</p>	<p>D1 displays 00.0.</p> <p>D1 displays 000.</p> <p>D2 displays 000.</p> <p>D2 displays 00.0.</p>	<p>Do table 3, WP036 00.</p> <p>Do table 1, WP036 00.</p> <p>Do table 2, WP036 00.</p> <p>Do table 4, WP036 00.</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: 150px;"> WARNING </div> <p>To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
<p>d. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do substeps below:</p> <p style="padding-left: 40px;">(1) Shut down APU or engine (A1-F18AC-LMM-000).</p> <p style="padding-left: 40px;">(2) Tell fire department and take required action to make area safe.</p> <p>e. Operate right engine at ground IDLE (A1-F18AC-LMM-000).</p>		
<p align="center">NOTE</p> <p>When D2 displays approximately 5 PSI, the transfer shutoff valve in tank 3 is open allowing tank 3 to accept fuel. When D2 displays approximately 50 PSI, the transfer shutoff valve is closed.</p>		
f. On fuel system test set, monitor D3 FUEL INDICATOR (FEED position).	<p>1. Using JP-4, RIGHT counter tank 3 cycles within 1070 to 1225. Using JP-5, RIGHT counter tank 3 cycles within 1150 to 1320. D2 displays approximately 5 to 50 PSI.</p> <p>2. LEFT counter (tank 2) does not increase.</p>	<p>1. If tank 3 not cycling and right wing fuel mount not increasing; replace right engine transfer motive flow check valve (A1-F18AC-460-300, WP120 00). If tank 3 not cycling, do table 2, WP012 05.</p> <p>2. Replace no. 2 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP108 00).</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
g. On fuel system test set, monitor D3 FUEL INDICATOR (TRANS position).	1. LEFT counter (tank 1) does not increase.	1. Inspect transfer piping in tank 1. (Refer to WP013 00, figure 1 for component location). If piping is good, replace no. 1 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00).
	2. RIGHT counter (tank 4) does not increase.	2. Inspect transfer piping in tank 4. (Refer to WP013 00, figure 1 for component location). If piping is good, replace no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00).
h. On fuel system test set, monitor D2 (switch S2 set to FUS XFER).	D2 displays approximately 5 and 50 PSI as tank 1 and 4 fuel amounts are decreasing.	If tank 1 is not decreasing, do table 2, WP012 03. If tank 4 is not decreasing, do table 2, WP012 06.
i. On fuel system test set, monitor D1 (switch S1 set to WING XFER).	D1 displays 0 PSI (verifying wing damage fuel shutoff valve is closed).	Do table 6, WP013 00.
j. On fuel system test set, monitor D3 FUEL INDICATOR (INTR WING position, RIGHT counter).	RIGHT counter amount increasing (verifying right diverter valve in wing position).	Do table 3, WP013 00.
7. LEFT AND RIGHT INTERNAL TRANSFER AND ENGINE FEED TEST (QA).		
a. Crossbleed start the left engine (A1-F18AC-LMM-000). Run left and right engine at ground IDLE.		
<p align="center">NOTE</p> <p align="center">If tanks 1 and 4 are empty, tank 2 will not cycle when doing step below.</p>		
b. On fuel system test set, monitor D3 FUEL INDICATOR (FEED position).	Using JP-4, LEFT counter cycles within 1360 to 1570. Using JP-5, LEFT counter cycles within 1470 to 1690. D2 displays approximately 5 to 50 PSI.	If tank 2 not cycling and left wing fuel amount not increasing; replace left engine transfer motive flow check valve (A1-F18AC-460-300, WP120 00). If tank 2 not cycling; do table 2 WP012 04.
c. Monitor D3 FUEL INDICATOR (INTR WING position).	LEFT counter amount increasing (verifying left diverter valve in wing position).	Do table 7, WP013 00.

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>d. Monitor display D2 (switch S2 set to FUS XFER) and D3 FUELINDICATOR (TRANS position).</p> <p>e. On FUEL CHECK PANEL (door 8), set and hold TK INTCON V CHK switch to CHK.</p> <p>f. On test set, set switch S7 to FUS. Set switch S6 to OPEN. Monitor display D1 (switch S1 set to WING XFER).</p> <p>g. Do substeps below:</p> <p>(1) Set D3 FUEL INDICATOR selector knob to INTR WING.</p> <p>(2) On individual tank precheck valve (doors 141 L/R) pull handles T1 and T4 down (allows wing fuel tanks to transfer fuel).</p> <p>(3) Set switch S1 to WING XFER. Monitor display D1.</p>	<p>D2 displays 0 PSI when both LEFT (tank 1) and RIGHT (tank 4) counters indicate 0 lb.</p> <p>1. TK 2 V POS light comes on (verifying no. 2 fuel tank pressure operated valve is closed).</p> <p>2. TK 3 V POS light come on (verifying no. 3 tank pressure operated interconnect valve is closed).</p> <p>D1 displays 50 PSI.</p> <p>1. D1 displays 3 PSI when wing tanks are transferring. The time required for each LEFT and RIGHT counter to indicate 50 pounds or less is less than 10 minutes.</p> <p>2. D1 displays 0 PSI when both wing fuel tanks empty.</p>	<p>Replace no. 1 tank transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP105 00). Replace no. 4 tank transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP116 00).</p> <p>1. Replace no. 2 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP110 00).</p> <p>2. Replace no. 3 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP114 00).</p> <p>Replace no. 1 fuel tank refuel/transfer check valve (A1-F18AC-460-300, WP052 00) and no. 4 fuel tank refuel/transfer check valve (A1-F18AC-460-300, WP053 00).</p> <p>1. Do table 1, WP019 00.</p> <p>2. Replace both left and right wing transfer motive flow shutoff valves and pilot valves (A1-F18AC-460-300, WP113 00).</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)


Procedure	Normal Indication	Remedy for Abnormal Indication
h. Set switch S1 to FEED. Monitor display D1.	<p>1. On 161353 THRU 161761 BEFORE F/A-18 AFC 18 AND F/A-18 AFC 53, D1 displays 3 PSI minimum.</p> <p>2. On 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 18 AND F/A-18 AFC 53, D1 displays 6 PSI minimum.</p>	<p>1. Remove left engine fuel boost jet ejector (A1-F18AC-460-300, WP133 00). Inspect for blocked motive flow tubing, if tubing is good, replace left engine fuel boost jet ejector (A1-F18AC-460-300, WP133 00).</p> <p>2. Remove no. 2 fuel tank engine fuel turbine boost pump. (A1-F18AC-460-300, WP133 03). Inspect for blocked motive flow tubings if tube is good, replace no. 2 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP133 03).</p>
i. Set switch S2 to RIGHT FEED. Monitor display D2.	<p>1. On 161353 THRU 161761 BEFORE F/A-18 AFC 18 AND F/A-18 AFC 53, D1 displays 3 PSI minimum.</p> <p>2. On 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 18 AND F/A-18 AFC 53, D1 displays 6 PSI minimum.</p>	<p>Remove right engine fuel boost jet ejector (A1-F18AC-460-300, WP134 03). Inspect for blocked motive flow tubing, if tubing is good, replace right engine fuel boost jet ejector (A1-F18AC-460-300, WP134 00).</p> <p>Remove no. 3 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP134 03). Inspect for blocked motive flow tubing, if tubing is good, replace no. 3 fuel tank engine fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP134 03).</p>
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>Setting the FIRE warning light, arms the engine fire extinguishers. Do not set the ARMED/DISCHG switch on cockpit master arm control panel assembly unless a fire occurs.</p>		
j. Shutdown right engine (A1-F18AC-LMM-000) by pushing the FIRE light on RH advisory and threat warning indicator panel.	D2 displays 00.0 or a negative PSI. Right engine shuts down in approximately 60 seconds.	Do table 2, WP012 07.
k. Monitor D3 FUEL INDICATOR, RIGHT counter in FEED position.	RIGHT counter (tank 3) fuel amount does not increase.	Replace no. 3 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP112 00).


Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

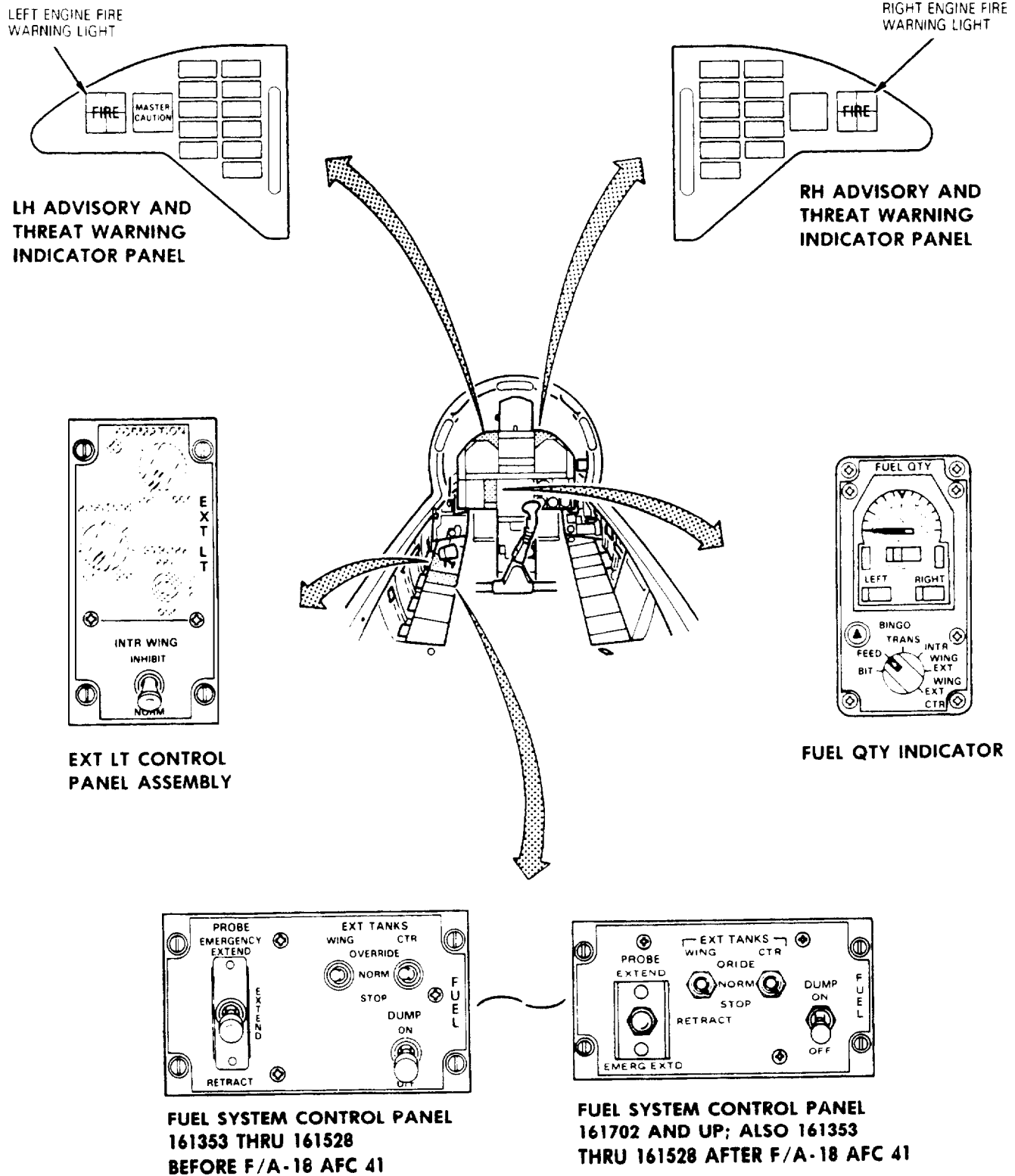
Procedure	Normal Indication	Remedy for Abnormal Indication
<p>1. Shut down left engine (A1-F18AC-LMM-000) by pushing the FIRE light on LH advisory and threat warning indicator panel.</p> <p>m. Record tank 1 and 4 fuel amounts.</p> <p>8. FINAL.</p> <p>a. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>b. Disconnect fuel system test set.</p> <p>c. Rotate all handles on individual tank precheck valve up.</p> <p>d. Set cockpit switches as listed below (fig 3):</p>	<p>D1 displays 00.0 or a negative PSI. Left engine shuts down in approximately 60 seconds.</p> <p>1. Tank 1 fuel amount does not increase (verifying tank 2 gravity feed check valve is closed).</p> <p>2. Tank 4 fuel amount does not increase (verifying tank 3 gravity feed check valve is closed).</p>	<p>Do table 3, WP012 07.</p> <p>1. Replace no. 2 tank gravity feed check valve (A1-F18AC-460-300, WP105 00).</p> <p>2. Replace no. 3 tank gravity feed check valve (A1-F18AC-460-300, WP115 00).</p>
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
RH advisory and threat warning indicator panel	FIRE light	not pushed (right fuel shutoff valve open)
LH advisory and threat warning indicator panel	FIRE light	not pushed (left fuel shutoff valve open)
e. Make sure master precheck valve handle in door 8 is in DOWN NORMAL position.		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>f. On no. 8 circuit breaker/relay panel assembly (door 10L), close FUEL LOW LVL WRN circuit breaker (fig 1).</p> <p>g. On 161520 AND UP, on no. 7 circuit breaker/relay panel assembly (door 10L), close TANK 1 TRANSFER circuit breaker (fig 1).</p> <p>h. Close or install doors (A1-F18AC-LMM-010) below:</p> <p>Door 8</p> <p>Door 9</p> <p>Door 10L and 10R</p> <p>Door 46R - 161353 THRU 161944</p> <p>Door 141L Door 141R</p> <p>i. On 161353 THRU 161359 LAND BASE ONLY, do substeps below:</p> <p>(1) Connect 5P-F014B to J2 on intermediate device (door 14R).</p> <p>(2) Close door 14R (A1-F18AC-LMM-010).</p> <p>j. Reset nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).</p> <p>9. FUEL LEVEL CONTROL SELECTOR VALVE DISCONNECT. (QA)</p> <p>a. Make sure each button on the fuel level control selector valve (NLG wheelwell) is in full up position (fig 2).</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<div style="text-align: center;">  </div> <p>To prevent fuel system malfunctions, the motive flow tube (1) to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p> <div>b. Position safety container under tube (1, detail B) to catch residual fuel.</div> <div>c. If test hose was used, continue to step d. If test hose was not used, disconnect motive flow tube per substeps below:</div> <div>(1) Disconnect tube (1, figure 2, detail B).</div> <div>(2) Loosen nut (5).</div> <div>(3) Rotate elbow (3) approximately 90° and tighten nut (5).</div> <div>(4) Install cap (4) on elbow (3, detail A).</div> <div>(5) Install plug (2) in tube (1).</div> <div>d. Do substeps below:</div> <div>(1) Disconnect test hose and nipple (1A, figure 2, detail C).</div> <div>(2) Install cap (4) on elbow (3, detail A)</div> <div>(3) Install plug (2) in tube (1).</div>		



12080101

Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 1 of 4)

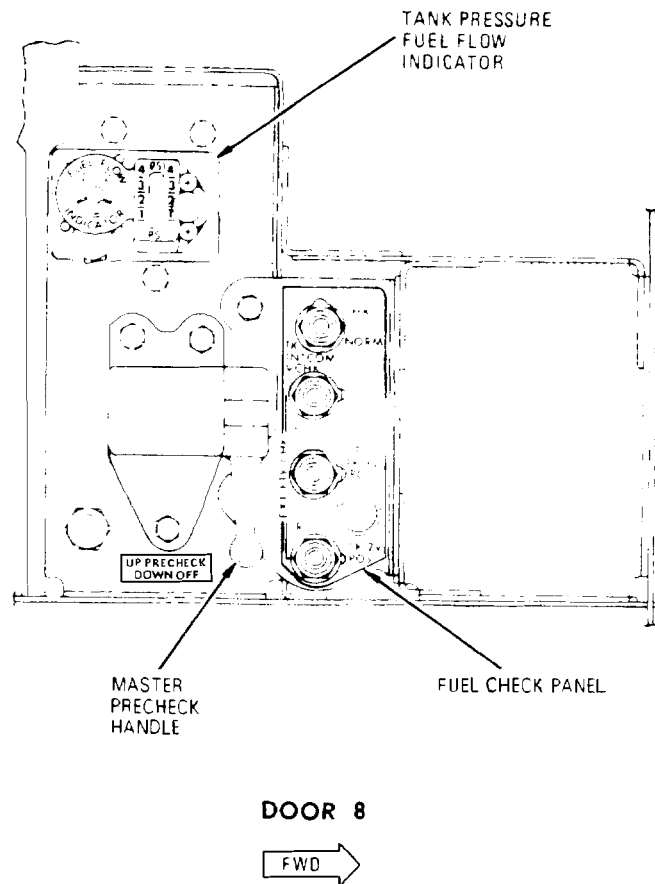
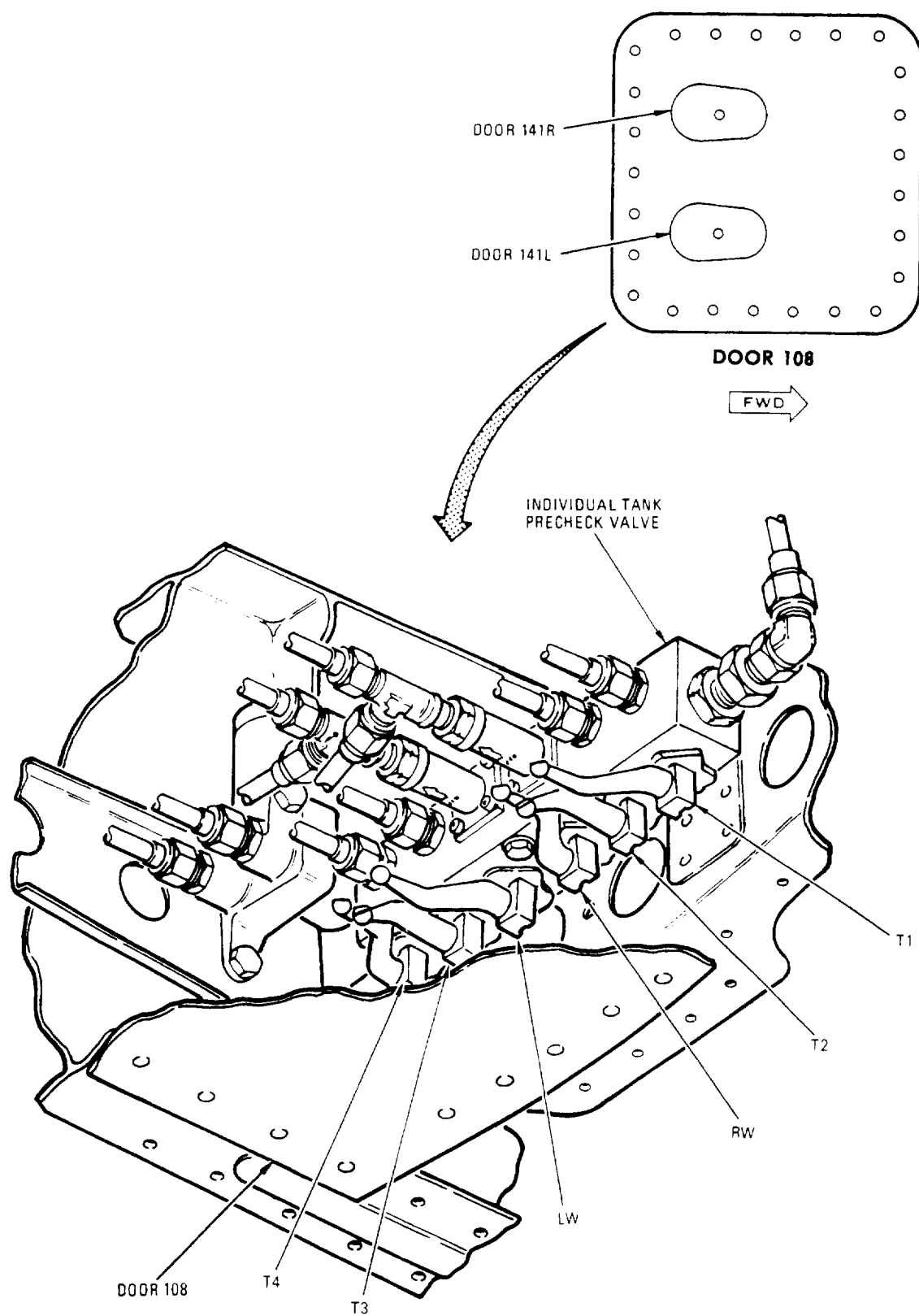


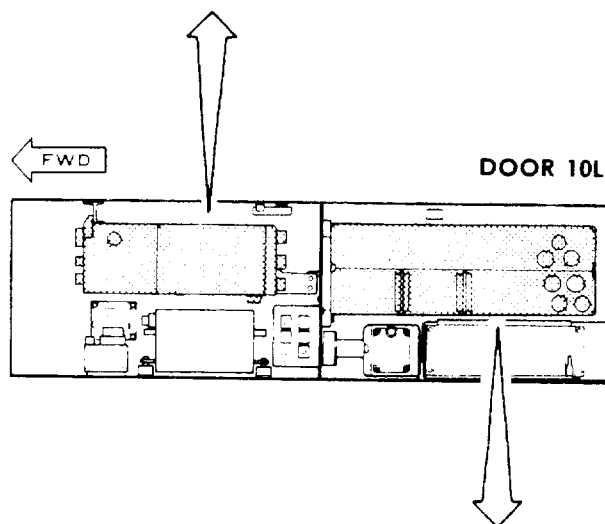
Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 2)



12080103

Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 3)

52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A5	5CBC050	FUEL LOW LVL WRN	L 28VDC



52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
C9	5CBC157	1 TANK 1 TRANSFER	L 28VDC

LEGEND1 161520 AND UP

12080104

Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 4)

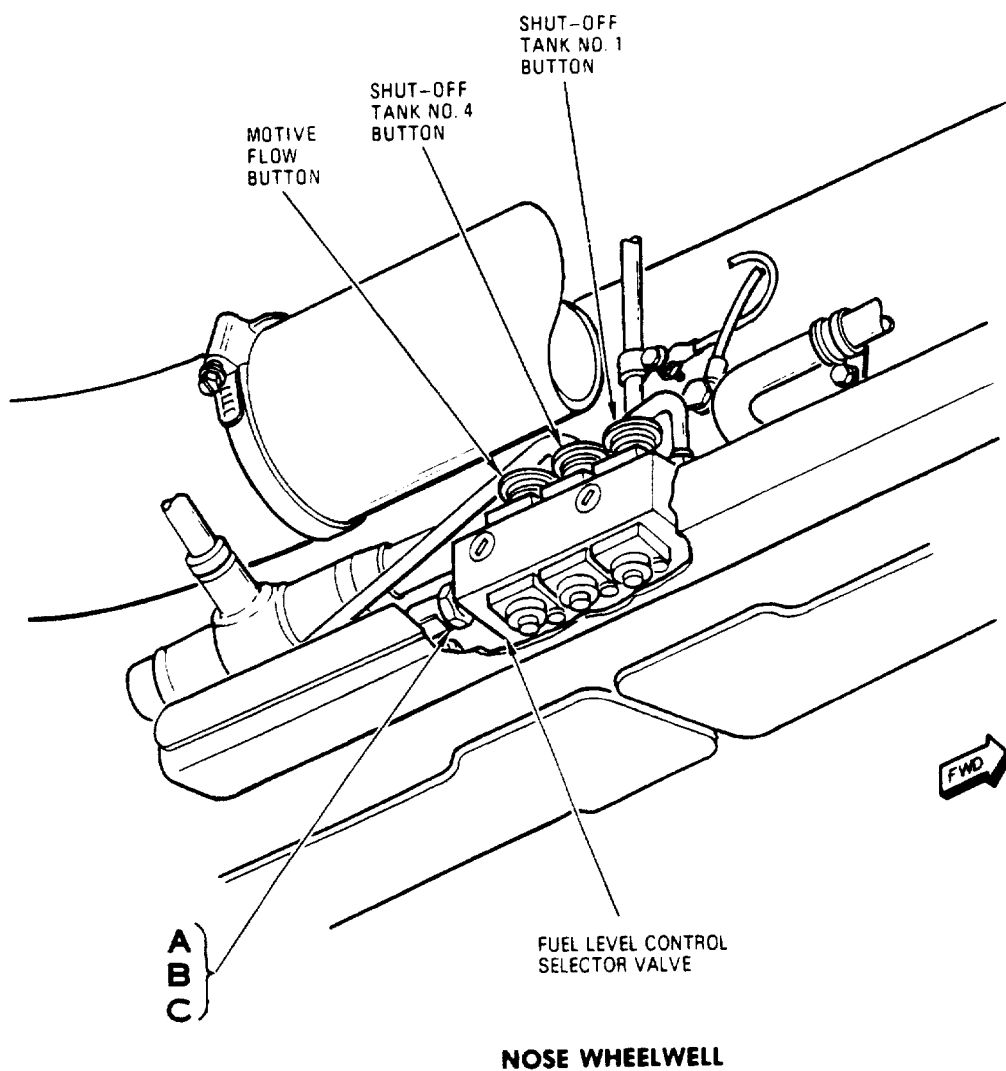
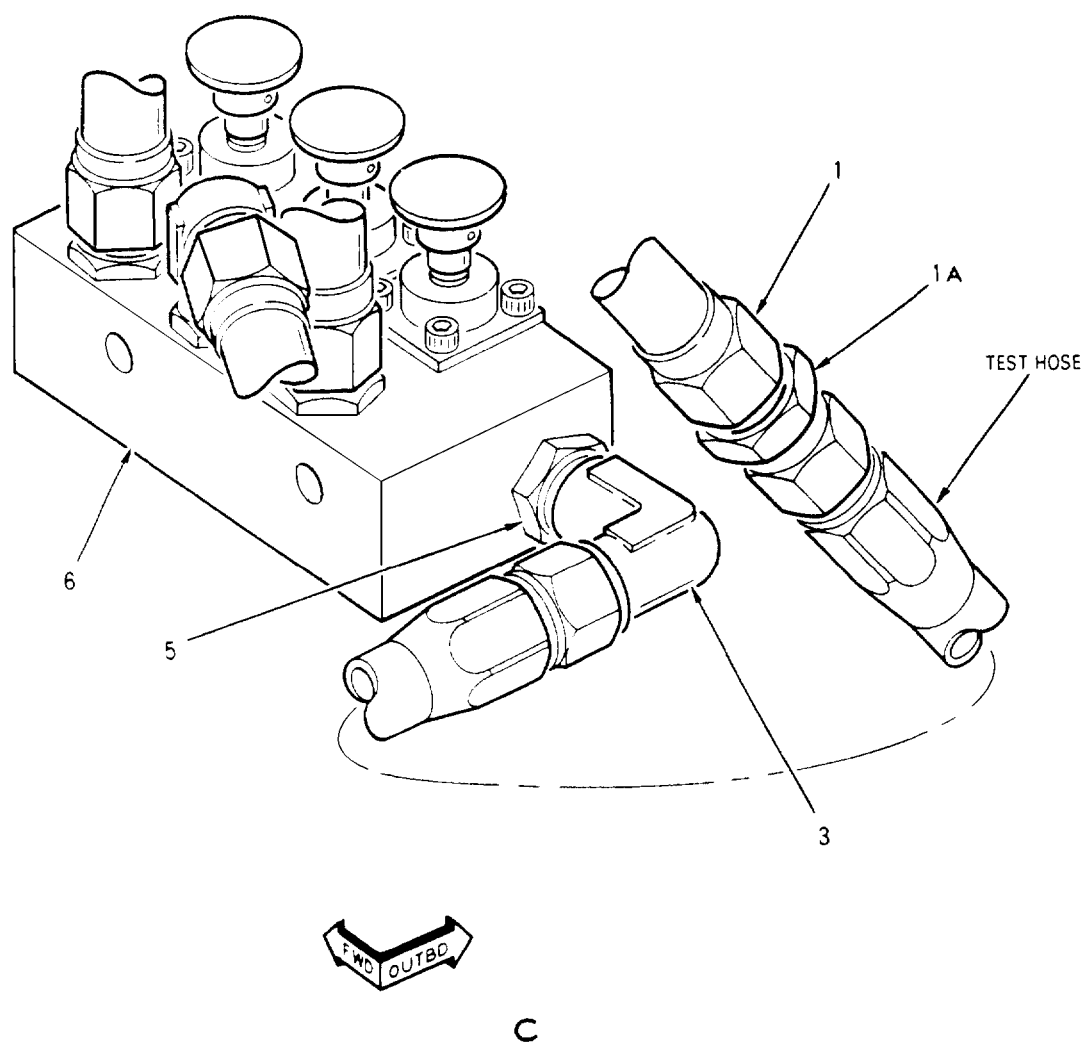


Figure 2. Fuel Level Control Selector Valve Hookup (Sheet 1 of 3)



LEGEND

FOR PARTS DATA INFORMATION
REFER TO A1-F18AC-460-300
WP128 00 AND A1-F18AC-PIM-000.

Figure 2. Fuel Level Control Selector Valve Hookup (Sheet 3)

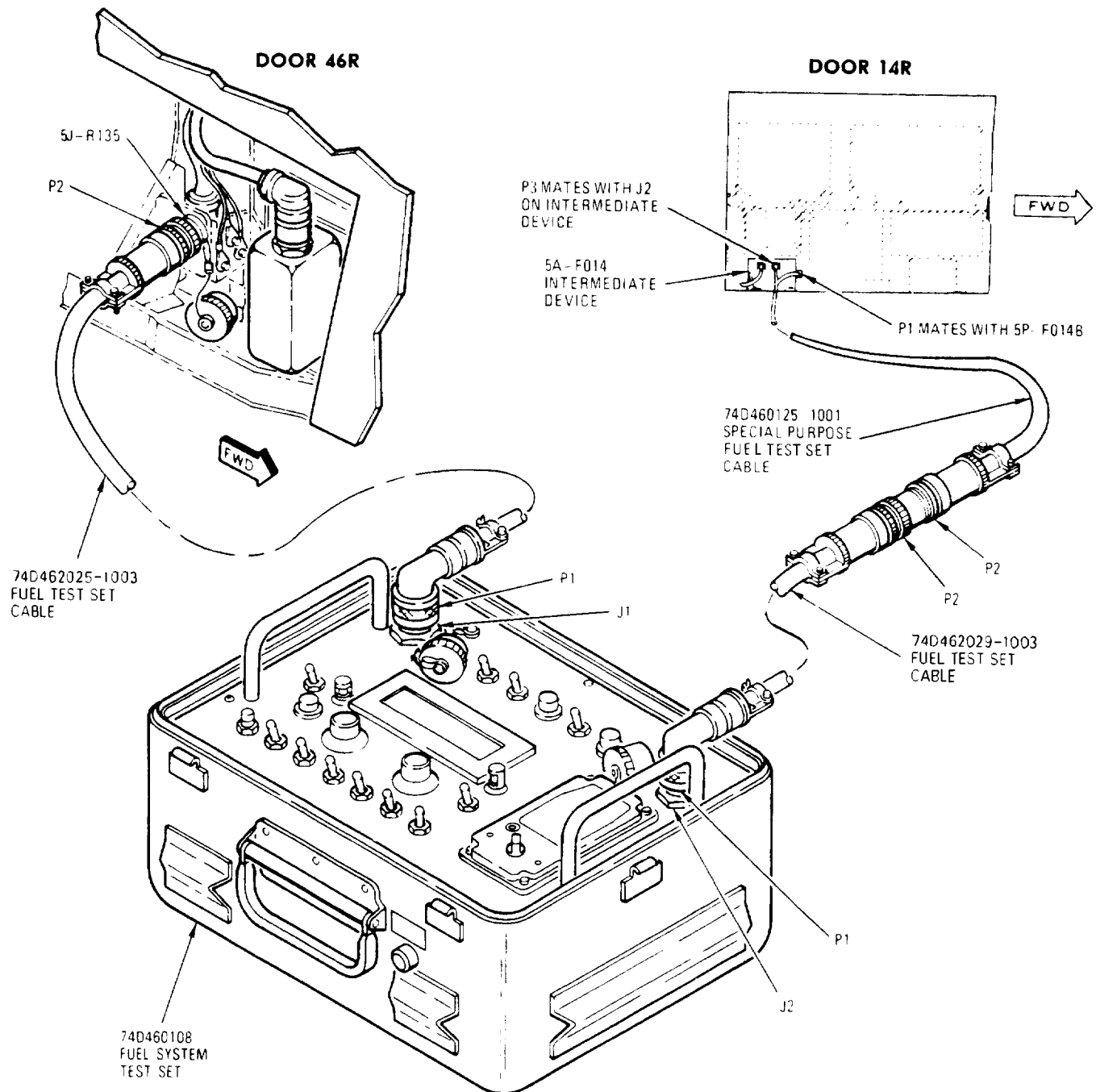
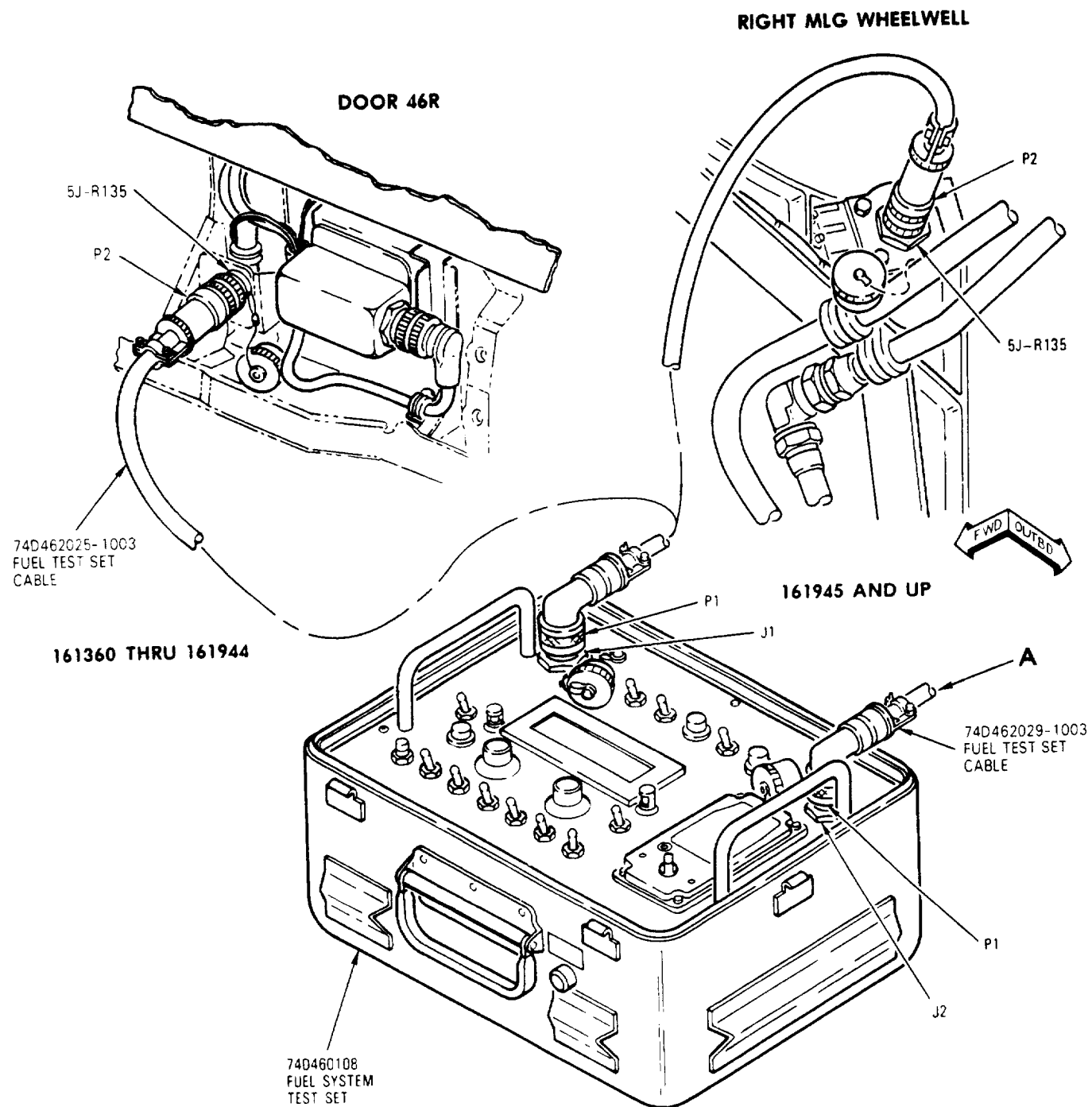
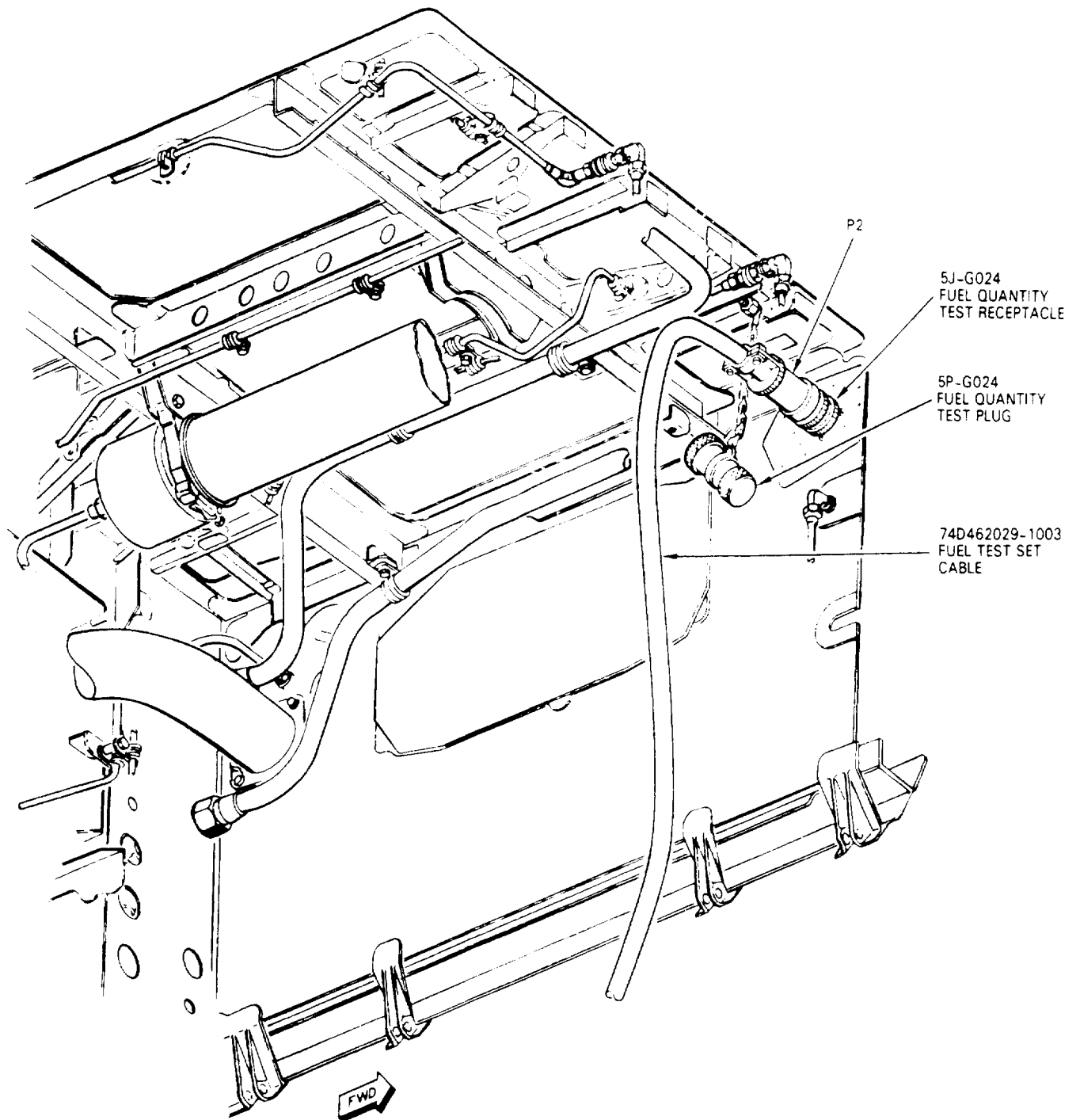


Figure 3. Fuel System Test Set Hookup, 161353 THRU 161359



12080401

Figure 4. Fuel System Test Set Hookup, 161360 AND UP (Sheet 1 of 2)

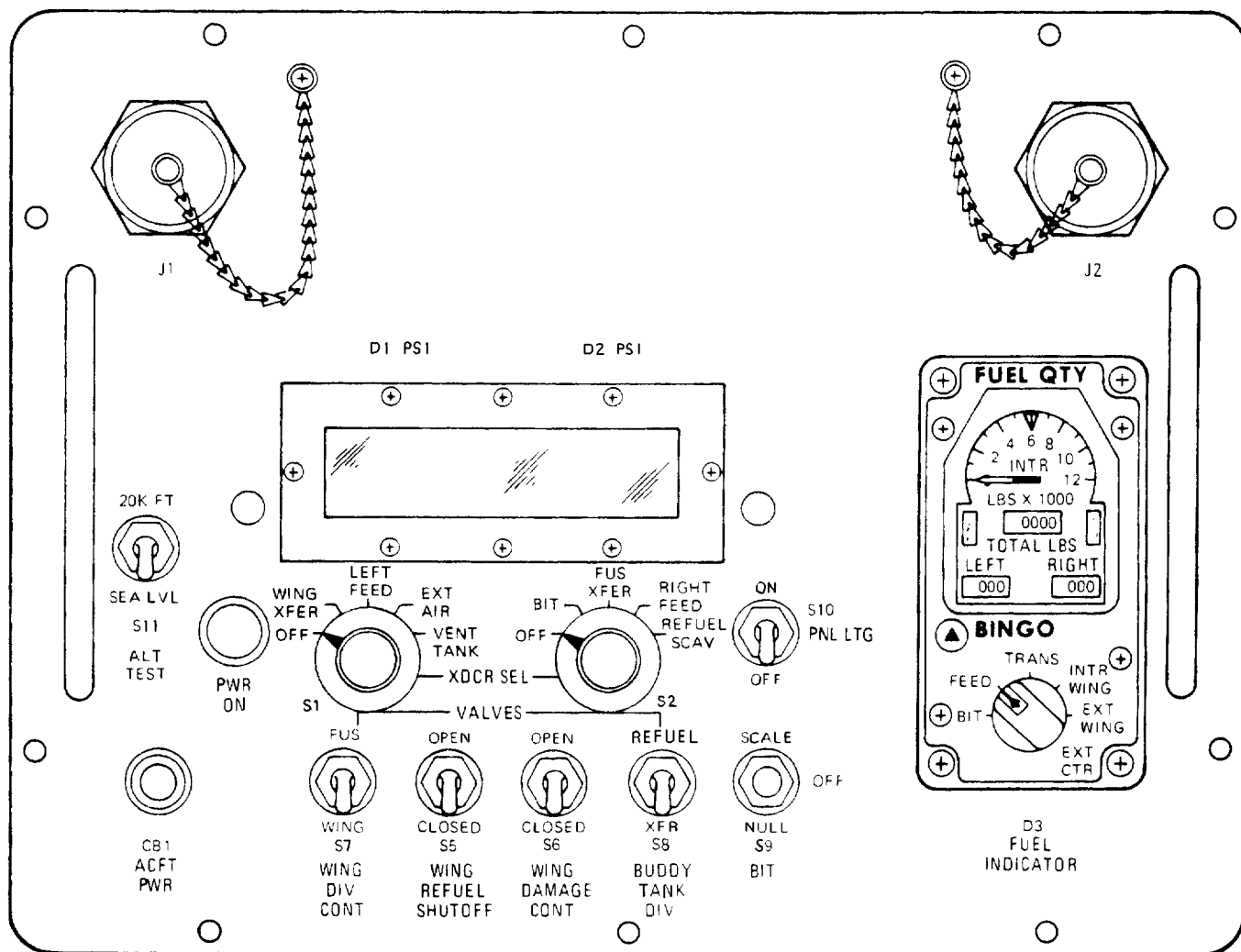


A

NOSE WHEELWELL, LEFT SIDE

12080402

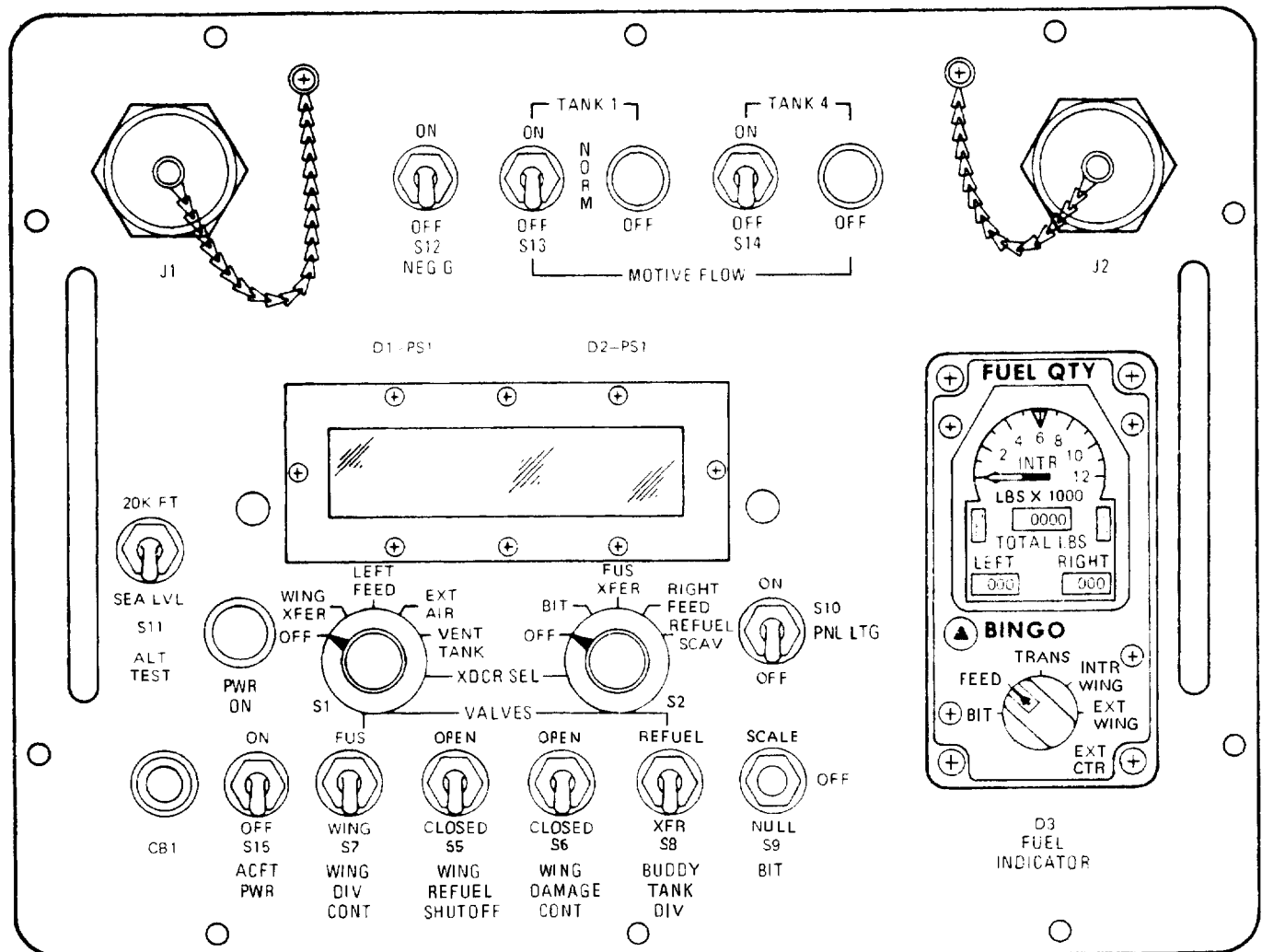
Figure 4. Fuel System Test Set Hookup, 161360 AND UP (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 5. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 5. Fuel System Test Set Controls and Displays (Sheet 2)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST

INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM

**EFFECTIVITY: 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 18, 39
AND 53, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 41**

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000
Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel Level Control Selector Valve Hookup, Figure 2	22
Fuel System Test Set Controls and Displays, Figure 4	27
Fuel System Test Set Hookup, Figure 3	25
Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator, Figure 1	18
Internal Fuel Transfer and Engine Fuel Supply System Test, Table 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Jul 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Tanks 2 and 3 (ECP MDA-F/A-18-00077C1/C2)	1 Oct 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

NOTE

Internal Fuel Transfer System and Engine Fuel Supply System Schematics (A1-F18AC-460-500, WP007 00 and WP008 00), may be used while doing this test.

1. INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM TEST.

2. The internal transfer and engine fuel supply system test is made up of a right and left transfer and engine fuel supply test. The tests are used to verify that systems are functioning correctly. The test must be done in sequence and any abnormal indication must be corrected before going to next step.

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Power Plant and Related Systems		
Secondary Power System		
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1003	Fuel System Test Set	
—	External Electrical Power Source	
MS28741-4-720	Nonmetallic Hose Assembly (Test Hose)	
7M637BD-4D	Nipple (installs on one end of test hose)	
Materials Required		
None		
NOTE		
If this test is being done to troubleshoot a transfer failure, first do a transfer leak test (A1-F18AC-460-200, WP012 02). If aircraft passes leak test, continue this test.		
1. FUEL LEVEL CONTROL SELECTOR VALVE HOOKUP.		
a. Make sure electrical power is not applied (A1-F18AC-LMM-000).		

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>b. Position safety container under tube (1, fig 2, detail A) to catch residual fuel.</p>		
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">The motive flow tube can be hooked up as shown in Figure 2, detail B or Figure 2, Detail C. If hooking up motive flow tube per Detail C, a hose assembly must be made.</p>		
<p>c. If using test hose continue to step d. Hookup motive flow tube (1) per substeps below:</p> <p>(1) Remove plug (2) and cap (4).</p> <p>(2) Loosen nut (5).</p> <p>(3) Rotate elbow (3) and connect tube (1, detail B).</p> <p>(4) Tighten nut (5).</p> <p>d. Do substeps below:</p> <p>(1) Remove plug (2) and cap (4, figure 2) detail A.</p> <p>(2) Install 7M637BD-4D nipple on one end of test hose to motive flow tube (1).</p> <p>(3) Install opposite end of test hose to elbow (3).</p>		
<p>2. PREPARATION.</p>		
<p>a. On FUEL CHECK PANEL (door 8, fig 1), press TK1 V POS light. Press TK2 V POS and TK3 V POS lights.</p>	<p>All lights come on.</p>	<p>Do table 1, WP013 01.</p>
<p>b. Release lights.</p>	<p>Lights go out.</p>	<p>Replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. Set and hold TK INTCON V CHK switch to CHK.</p> <p>d. Release TK INTCON V CHK switch.</p>	<p>1. TK1 V POS light remains out (verifying no. 1 tank pressure operated interconnect valve is open).</p> <p>2. TK2 V POS light remains out (verifying no. 2 tank pressure operated interconnect valve is open).</p> <p>3. TK3 V POS light remains out (verifying no. 3 tank pressure operated interconnect valve is open).</p>	<p>1. Replace no. 1 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP107 00).</p> <p>2. Replace no. 2 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP110 00).</p> <p>3. Replace no. 3 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP114 00).</p>
<p style="text-align: center;">NOTE</p> <p>Defueling is required to empty the wing fuel tanks and to get the fuel amount below the starting amount to allow for fuel increase when verifying refuel and transfer system tubing and components in later steps.</p>		
<p>e. Defuel aircraft to 2500 lbs (A1-F18AC-PCM 000). If wing tanks are not empty, continue to defuel until wing tanks are empty.</p>		
<p style="text-align: center;">NOTE</p> <p>Refuel system must master precheck and fuel quantity gaging system must pass BIT to prevent wrong test results. These tests are verified during refueling.</p>		
<p>f. Hookup refueling equipment. Start refueling and verify aircraft precheck (A1-F18AC-PCM-000).</p>	<p>In door 8, FUEL FLOW INDICATOR stops rotating within 45 seconds.</p>	<p>Do Refuel/Defuel System Pressure Test (Internal Tanks), WP003 00, Table 2.</p>
<p style="text-align: center;">NOTE</p> <p>Step below verifies transfer components and tubing are good. This is done using re-fuel pressure.</p>		
<p>g. While aircraft is in precheck, on fuel level control selector valve (nose wheelwell, left side), push MOTIVE FLOW button down.</p> <p>h. On fuel level control selector valve, pull up MOTIVE FLOW button.</p>	<p>IN door 8, FUEL FLOW INDICATOR stops rotating within 45 seconds.</p>	<p>Do Transfer Leak Test, WP012 02, Table 1.</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>i. In door 8, rotate master pre-check handle to DOWN OFF.</p> <p>j. Refuel aircraft using electrical power (A1-F18AC-PCM-000) to 4000 lbs (JP5) or 3600 (JP4).</p> <p>k. Disconnect refueling equipment (A1-F18AC-PCM-000).</p> <p>l. Turn off external electrical power (A1-F18AC-LMM-000).</p>		
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Opening the FUEL LOW LVL WRN circuit breaker is required to prevent diverter valve from shifting automatically to fuselage position when either feed tank is at low level warning (800 + 100 lbs).</p>		
<p>m. Do substeps below:</p> <p>(1) Open door 10L (A1-F18AC-LMM-010).</p> <p>(2) On no. 8 circuit breaker/relay panel assembly, open FUEL LOW LVL WRN circuit breaker (fig 1).</p> <p>n. Remove doors 141L and 141R (A1-F18AC-LMM-010).</p> <p>o. Set controls as listed below (fig 1):</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
Individual tank precheck valve (doors 141 L and R)	T1 handle T2 handle RW handle LW handle T3 handle T4 handle	up down down down down up
Fuel level control valve (NLG wheelwell)	MOTIVE FLOW button SHUTOFF TANK NO. 1 SHUTOFF TANK NO. 4	down up up
<p>3. FUEL SYSTEM TEST SET HOOKUP.</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 3).</p> <p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p> <p>c. Hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 3).</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>d. On fuel system test set (fig 4), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - OFF S2 - OFF S5 - CLOSED S6 - CLOSED S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL S12 - OFF S13 - ON S14 - ON S15 - OFF CB1 - closed D3 - FUEL INDICATOR- Selector knob to TRANS</p> <p>e. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>f. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>g. Set switch S15 to ON.</p> <p>h. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p>	<p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Replace test set.</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
i. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle.	Counters and needle do not hang up. LEFT counter moves to 550 to 650 lbs. Right counter moves to 550 to 650 lbs. TOTAL LBS counter moves to 5800 to 6200 lbs. INTR needle moves to 5800 to 6200 lbs. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.	Turn off electrical power (A1-F18AC-LMM-00). Disconnect test cable P2 from quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.
j. Release D3 FUEL INDICATOR selector knob.	Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counters return without stopping or jerking.	Replace test set.
4. TRANSDUCER CHANNEL BIT. (QA)		
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 3, WP013 02.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 3, WP013 02.
c. Release switch S9.		
5. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>The WING XFER, FUS XFER, LEFT FEED and RIGHT FEED pressure transducers are monitored for this test. If a transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will display. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to FUS XFER. Record D2 display (non-nulled).		
b. Set switch S2 to RIGHT FEED. Record D2 display (non-nulled).		
c. Set switch S1 to WING XFER. Record D1 display (non-nulled).		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>d. Set switch S1 to LEFT FEED. Record D1 display (non-nulled).</p> <p>e. Set switch S2 to OFF.</p> <p>f. Set switch S9 to NULL and release.</p> <p>g. Set switch S1 to WING XFER. Set switch S9 to NULL and release.</p> <p>h. Set switch S1 to OFF.</p> <p>i. Set switch S2 to FUS XFER. Set switch S9 to NULL and release.</p> <p>j. Set switch S2 to RIGHT FEED. Set switch S9 to NULL and release.</p> <p>6. RIGHT INTERNAL TRANSFER AND ENGINE FEED TEST. (QA)</p> <p>a. Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p> <p>b. On fuel system test set (fig 4), set switches as listed below:</p> <p>S1 - WING XFER S2 - FUS XFER S5 - CLOSED S6 - CLOSED S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL S12 - OFF S13 - OFF S14 - OFF S15 - ON CB1 - closed D3 - FUEL INDICATOR-Selector knob to TRANS</p>	<p>D1 displays 00.0.</p> <p>D1 displays 000.</p> <p>D2 displays 000.</p> <p>D2 displays 000.</p>	<p>Do table 3, WP036 00.</p> <p>Do table 1, WP036 00.</p> <p>Do table 2, WP036 00.</p> <p>Do table 4, WP036 00.</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> WARNING </div> <p style="text-align: center;">To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
c. Monitor the fuel dump and vent outlets on each vertical stabilizer. If fuel spills from outlets, do substeps below:		
(1) Shut down APU or engine (A1-F18AC-LMM-000).		
(2) Tell fire department and take required action to make area safe.		
d. Operate right engine at ground IDLE (A1-F18AC-LMM-000).		
e. Monitor D3 FUEL INDICATOR LEFT counter (tank 1) in TRANS position.	LEFT counter does not decrease.	Do table 2, WP013 01.
f. Monitor D3 FUEL INDICATOR RIGHT counter (tank 4) in TRANS position.	RIGHT counter does not decrease.	Do table 3, WP013 01.
g. Set switch S13 to ON and monitor LEFT counter.	LEFT counter decreasing.	Do table 4, WP013 01.
h. Monitor RIGHT counter.	RIGHT counter does not increase.	Inspect transfer piping in tank 4 (refer to WP013 00, fig 1 for component location). If piping is good, replace no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00).
i. Do substeps below:		
(1) Set switch S13 to OFF.		
(2) Set switch S14 to ON.		
(3) Monitor RIGHT counter.	RIGHT counter decreasing.	Do table 5, WP013 01.

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>j. Monitor LEFT counter.</p> <p>k. Do substeps below:</p> <p>(1) Set D3 FUEL INDICATOR selector knob to FEED.</p> <p>(2) Monitor LEFT counter (tank 2).</p>	<p>LEFT counter does not increase.</p> <p>LEFT counter does not increase.</p>	<p>Inspect transfer piping in tank 1 (refer to WP013 00, fig 1 for component location). If piping is good replace no. 1 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00).</p> <p>Replace no. 2 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP108 00).</p>
<p>NOTE</p> <p>When D2 displays approximately 5 PSI, the transfer shutoff valve in tank 3 is open allowing tank 3 to accept fuel. When D2 displays approximately 50 PSI, the transfer shutoff valve is closed.</p>		
<p>l. Monitor RIGHT counter (tank 3) and D2.</p> <p>m. Monitor D1 (switch S1 set to WING XFER).</p> <p>n. Do substeps below:</p> <p>(1) Set D3 FUEL INDICATOR selector knob to INTR WING.</p> <p>(2) Monitor RIGHT counter.</p> <p>o. Set switch S7 to WING. When RIGHT counter increases to 400, set switch S7 to FUS.</p> <p>7. LEFT AND RIGHT INTERNAL TRANSFER AND ENGINE FEED TEST. (QA)</p>	<p>Using JP-4, RIGHT counter cycles within 1070 to 1225. Using JP-5, RIGHT counter cycles within 1150 to 1320. D2 displays approximately 5 to 50 PSI.</p> <p>D1 displays 0 PSI (verifying wing damage fuel shutoff valve is closed).</p> <p>RIGHT counter does not increase (verifying right diverter valve in fuselage position).</p> <p>RIGHT counter increasing (verifying right diverter valve in wing position).</p>	<p>Do table 2, WP012 05.</p> <p>Do table 6, WP013 00.</p> <p>Do table 6, WP013 01.</p> <p>Do table 3, WP013 00.</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>a. Crossbleed start the left engine (A1-F18AC-LMM-000). Run left and right engine at ground IDLE.</p> <p>b. Monitor LEFT counter.</p> <p>c. Set switch S7 to WING. When LEFT counter increases to 400, set switch S7 to FUS.</p> <p>d. Set D3 FUEL INDICATOR selector knob to FEED.</p>	<p>LEFT counter does not increase (verifying left diverter valve in fuse-lage position).</p> <p>LEFT counter increasing (verifying left diverter valve in wing position).</p>	<p>Do table 6, WP013 01.</p> <p>Do table 7, WP013 00.</p>
<p>NOTE</p> <p>When D2 displays approximately 5 PSI, the transfer shutoff valve in tank 2 is open allowing tank 2 to accept fuel. When D2 displays approximately 50 PSI, the transfer shutoff valve is closed.</p>		
<p>e. Monitor LEFT counter (tank 2) and D2.</p> <p>f. On FUEL CHECK PANEL (door 8), set and hold TK INTCON V CHK switch to CHK.</p>	<p>Using JP-4, LEFT counter cycles within 1360 to 1570. Using JP-5, LEFT counter cycles within 1470 to 1690. D2 displays approximately 5 to 50 PSI.</p> <p>1. TK 1 V POS light comes on (verifying no. 1 tank pressure operated interconnect valve is closed).</p> <p>2. TK 2 V POS light comes on (verifying no. 2 tank pressure operated interconnect valve is closed).</p> <p>3. TK 3 V POS light comes on (verifying no. 3 fuel tank pressure operated interconnect valve is closed).</p>	<p>Do table 2, WP012 04.</p> <p>1. Do table 7, WP013 01.</p> <p>2. Do table 8, WP013 01.</p> <p>3. Do table 9, WP013 01.</p>
<p>NOTE</p> <p>CG control circuit may have fuel transfer from no. 1 fuel tank shut off. Fuel tanks 1 and 4 must be transferring prior to testing the negative G system.</p>		
<p>g. Do substeps below:</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(1) Set switch S13 to NORM.</p> <p>(2) Set D3 FUEL INDICATOR selector knob to TRANS.</p> <p>(3) Set switch S7 to WING.</p> <p>(4) Monitor LEFT and RIGHT counters. When both LEFT and RIGHT counters are decreasing, set switch S12 to ON.</p>	LEFT and RIGHT counters stop decreasing.	On 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 do table 10, WP013 01. On 162394 and UP do table 1, WP013 02.
<p>NOTE</p> <p>Although the FUEL LOW LVL WRN circuit breaker is open, fuel low can be simulated by setting test set switch S7 to FUS. Step below verifies the fuel low system will override the negative G system when fuel low occurs (tanks 1 and 4 transfer at fuel low).</p>		
h. Set switch S7 to FUS.	RIGHT and LEFT counters decreasing (fuel low system overrides negative G system).	On 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53, isolate between 5K-C163 fuel low level relay no. 1 and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00). On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, isolate between 5K-C163 fuel low level relay no. 1 and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00).
<p>NOTE</p> <p>Step below verifies the tank 1 pressure operated interconnect valve opens when fuel low occurs.</p>		
<p>i. Do substeps below:</p> <p>(1) On no. 8 circuit breaker/relay panel assembly (door 10L), close FUEL LOW LVL WRN circuit breaker (fig 1).</p>		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Set TK INCON V CHK switch to CHK.</p> <p>j. Monitor display D2 (switch S2 set to FUS XFER) and D3 FUEL INDICATOR (TRANS position).</p> <p>k. Set switch S6 to OPEN. Monitor D1.</p> <p>l. Do substeps below:</p> <p>(1) On individual tank precheck valve (doors 141 L/R) pull handles T1 and T4 down (allows wing fuel tanks to transfer fuel).</p> <p>(2) Set D3 FUEL INDICATOR selector knob to INTR WING.</p> <p>(3) Monitor LEFT and RIGHT counters and display D1.</p> <p>m. Set switch S1 to LEFT FEED.</p>	<p>TK1 V POS light not on.</p> <p>D2 displays 0 PSI when both LEFT (tank 1) and RIGHT (tank 4) counters indicate 0 lb.</p> <p>D1 displays approximately 50 PSI.</p> <p>1. D1 displays 3 PSI as LEFT and RIGHT counter amounts are decreasing.</p> <p>2. D1 displays 0 PSI when both wing fuel tanks empty.</p> <p>D1 displays 6 PSI minimum.</p>	<p>On 161924 THRU 162477, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, do table 11, WP013 01. On 162826 AND UP, do table 14, WP013 01.</p> <p>1. Replace no. 1 tank transfer shutoff valve pilot valve (A1-F18AC-460-300, WP105 00).</p> <p>2. Replace no. 4 tank transfer shutoff valve pilot valve (A1-F18AC-460-300, WP116 00).</p> <p>Replace no. 1 fuel tank refuel/transfer check valve (A1-F18AC-460-300, WP052 00) and no. 4 fuel tank refuel/transfer check valve (A1-F18AC-460-300, WP053 00).</p> <p>Do table 1, WP019 00.</p> <p>1. Do table 1, WP019 00.</p> <p>2. Replace both left and right wing transfer motive flow shutoff valves and pilot valves (A1-F18AC-460-300, WP113 00).</p> <p>Remove no. 2 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP133 03). Inspect for blocked motive flow tubing, if tubing is good, replace no. 2 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP133 03).</p>

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)



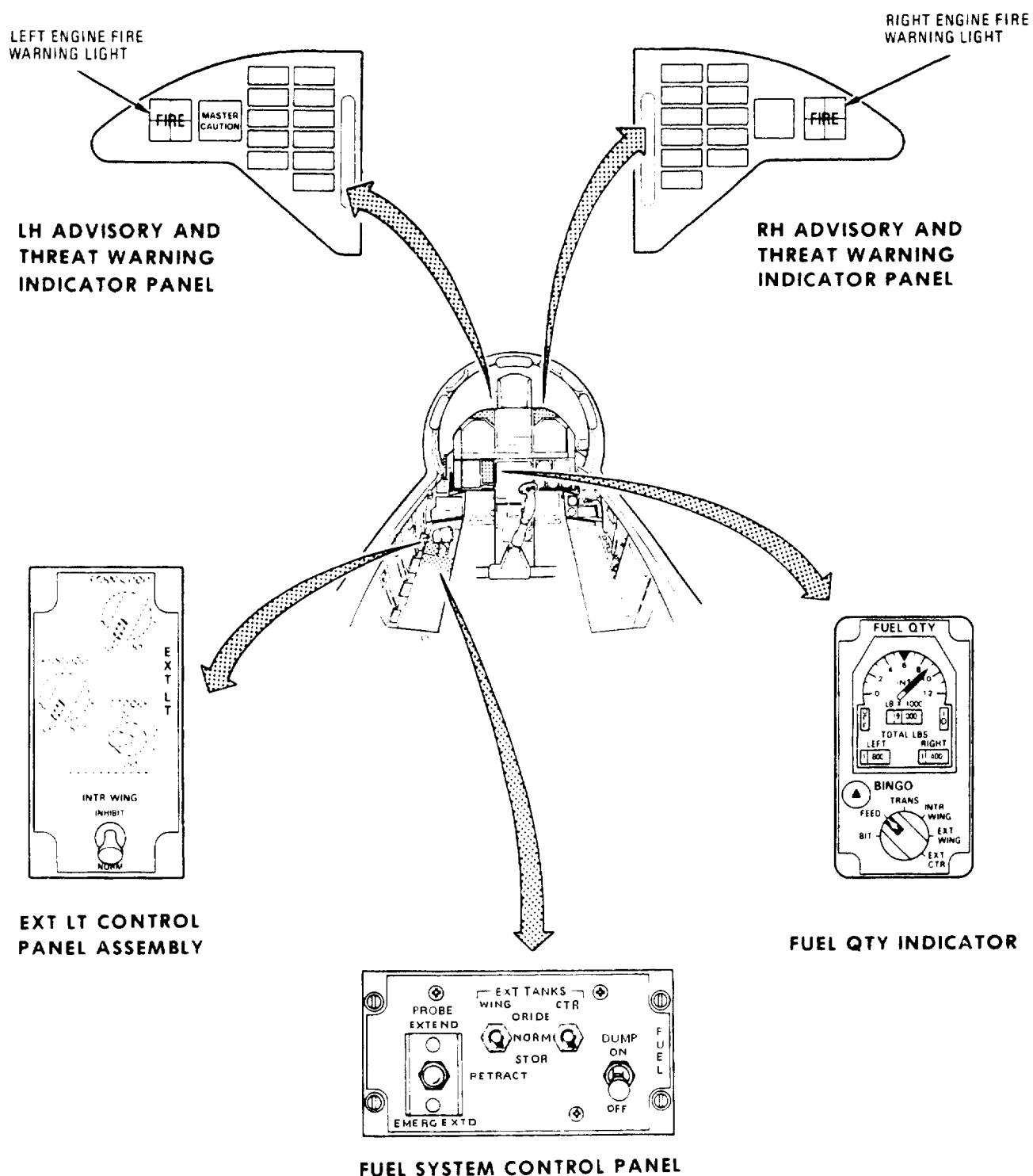
Procedure	Normal Indication	Remedy for Abnormal Indication
n. Set switch S2 to RIGHT FEED.	D2 displays 6 PSI minimum.	Remove no. 3 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP134 03). Inspect for blocked motive flow tubing, if tubing is good, replace no. 3 fuel tank engine fuel turbine boost pump (A1-F18AC-460-300, WP134 03).
		
<p>Setting the FIRE warning light arms the engine fire extinguishers. Do not set the ARMED/DISCHG switch on cockpit master arm control panel assembly unless a fire occurs.</p> <p>Normally engines are shut down by setting the throttles to OFF. Shutting down the engines using the FIRE light functionally tests the fuel shutoff valves. To prevent possible engine relight after engine rotation has stopped, the throttle should be set to OFF. It takes approximately 60 seconds for engine to shut down after FIRE light is pressed.</p>		
o. Shut down right engine (A1-F18AC-LMM-000) by pushing the FIRE light on RH advisory and threat warning indicator panel.	D2 displays 0 PSI. Right engine shuts down in approximately 60 seconds.	Do table 2, WP012 07.
p. Shut down left engine (A1-F18AC-LMM-000) by pushing the FIRE light on the LH advisory and threat warning indicator panel.	D1 displays 0 PSI. Left engine shuts down in approximately 60 seconds.	Do table 3, WP012 07.
q. Record tank 1 and 4 fuel amounts.	<p>1. Tank 1 fuel amount does not increase (verifying tank 2 gravity feed check valve is closed).</p> <p>2. Tank 4 fuel amount does not increase (verifying tank 3 gravity feed check valve is closed).</p>	<p>1. Replace no. 2 tank gravity feed check valve (A1-F18AC-460-300, WP105 00).</p> <p>2. Replace no. 3 tank gravity feed check valve (A1-F18AC-460-300, WP115 00).</p>
8. FINAL.		
a. Turn off external electrical power (A1-F18AC-LMM-000).		
b. Disconnect fuel system test set.		
c. Rotate all handles on individual tank precheck valve up.		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
d. Set cockpit switches as listed below (fig 3):		
ITEM	CONTROL	POSITION
FUEL system control panel	PROBE switch EXT TANKS WING switch CTR switch DUMP switch	RETRACT NORM NORM OFF
EXT LT control panel assembly	INTR WING switch	NORM
RH advisory and threat warning indicator panel	FIRE light	not pushed (right fuel shutoff valve open)
LH advisory and threat warning indicator panel	FIRE light	not pushed (left fuel shutoff valve open)
e. Make sure master precheck valve handle in door 8 is in DOWN NORMAL position.		
f. Close or install doors (A1-F18AC-LMM-010) below:		
Door 8		
Door 9		
Door 10L and 10R		
Door 46R - 161353 THRU 161944		
Door 141L Door 141R		
g. Reset nose wheelwell Digital Display Indicator ID-2150/ASM-612 (A1-F18AC-LMM-000).		
9. FUEL LEVEL CONTROL SELECTOR VALVE DISCONNECT.		

Table 1. Internal Fuel Transfer and Engine Fuel Supply System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>a. Make sure each button on the fuel level control selector valve (NLG wheelwell) is in full up position (fig 2).</p> <p style="text-align: center;"></p> <p>To prevent fuel system malfunctions, the motive flow tube (1) to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p> <p>b. Position safety container under tube (1, detail A) to catch residual fuel.</p> <p>c. If test hose was used, continue to step d. If test hose was not used, disconnect motive flow tube per substeps below:</p> <p style="padding-left: 40px;">(1) Disconnect tube (1 figure 2, detail B).</p> <p style="padding-left: 40px;">(2) Loosen nut (5).</p> <p style="padding-left: 40px;">(3) Rotate elbow (3) approximately 90° and tighten nut (5).</p> <p style="padding-left: 40px;">(4) Install cap (4) on elbow (3).</p> <p style="padding-left: 40px;">(5) Install plug (2) in tube (1).</p> <p>d. Do substeps below:</p> <p style="padding-left: 40px;">(1) Disconnect test hose from motive flow tube (1, figure 2) detail A.</p> <p style="padding-left: 40px;">(2) Remove nipple from end of test hose.</p> <p style="padding-left: 40px;">(3) Disconnect opposite end of test hose from elbow (3).</p> <p style="padding-left: 40px;">(4) Install plug (2) and cap (4).</p>		



12090101

Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 1 of 4)

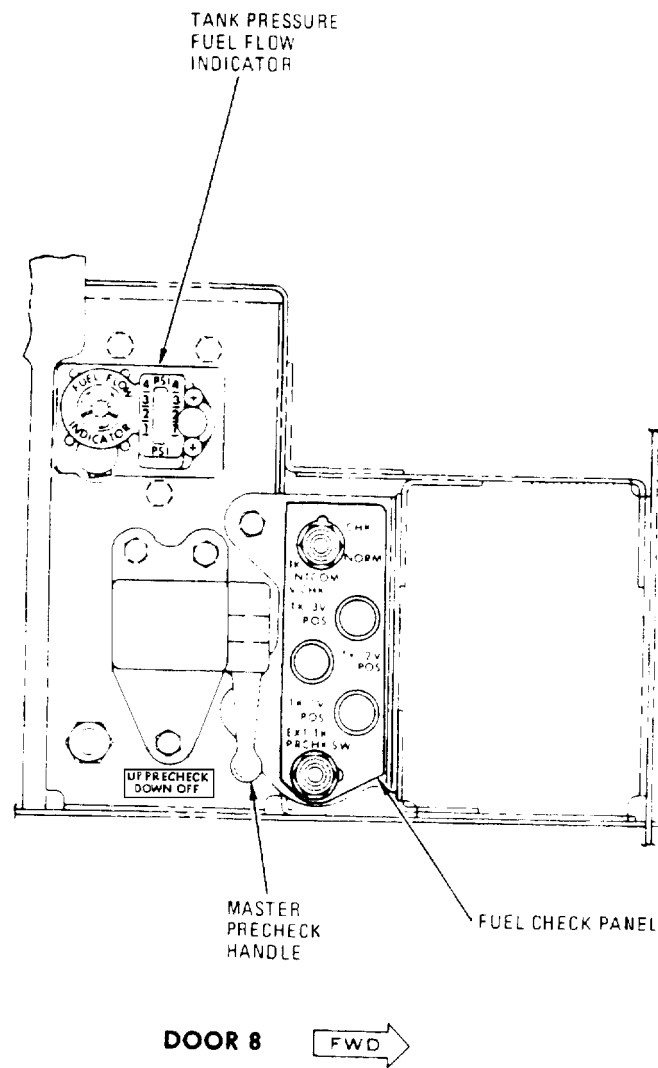
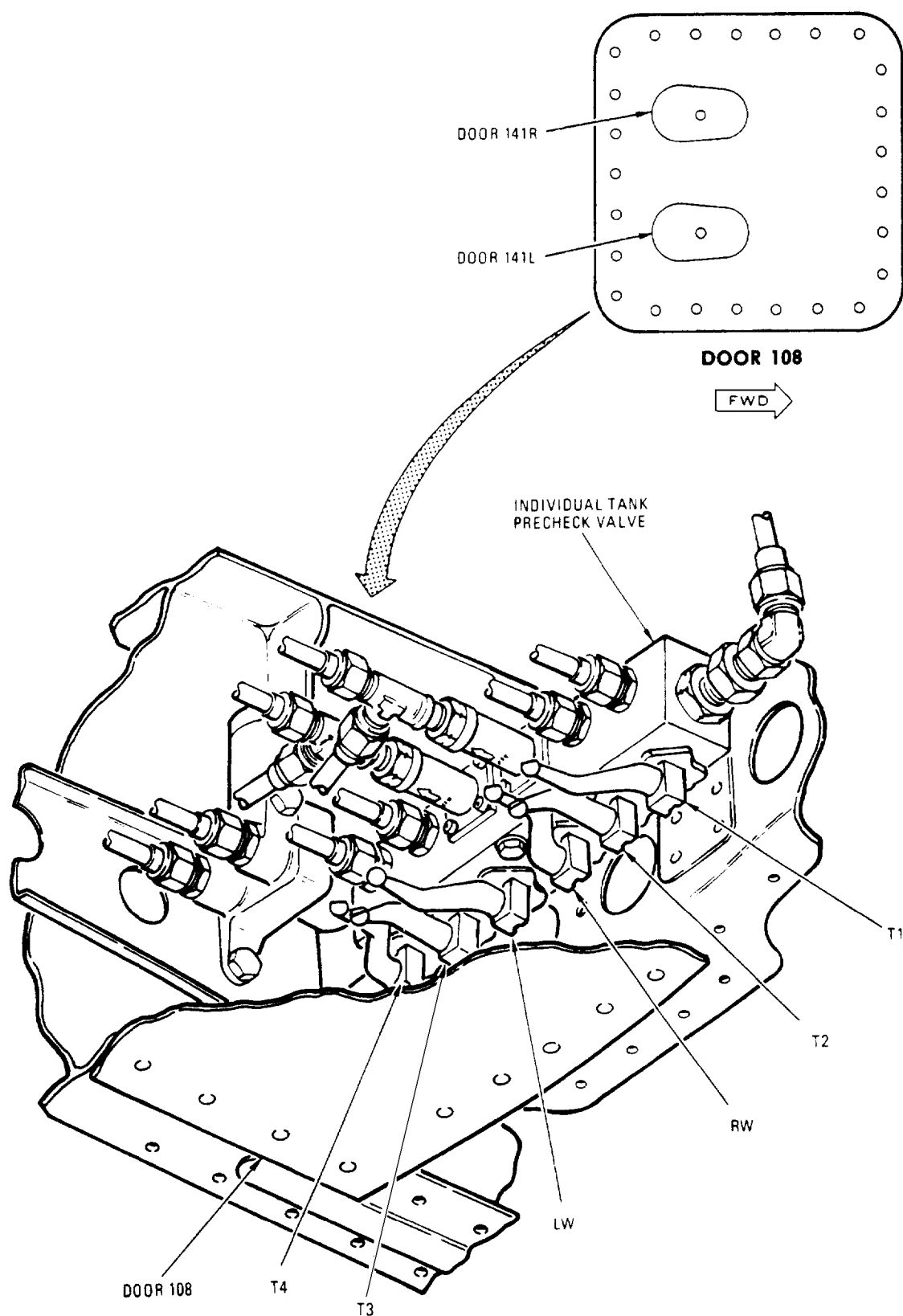
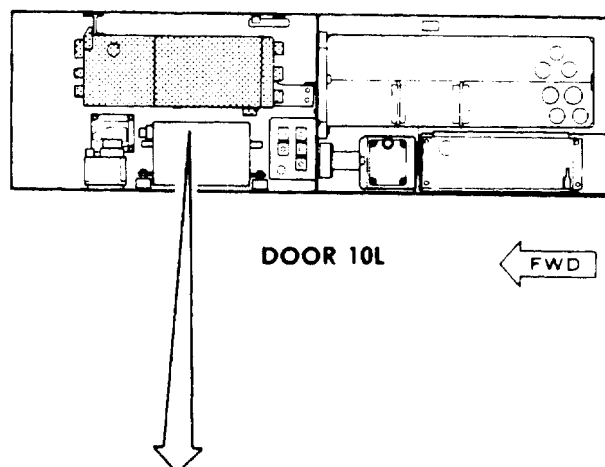


Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 2)



12090103

Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 3)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A5	5CBC050	FUEL LOW LVL WRN	L 28VDC

Figure 1. Internal Fuel Transfer and Engine Fuel Supply System Test Component Locator (Sheet 4)

LEGEND

FOR PARTS DATA INFORMATION
REFER TO A1-F18AC-460-300
AND A1-F18AC-PIM-000.

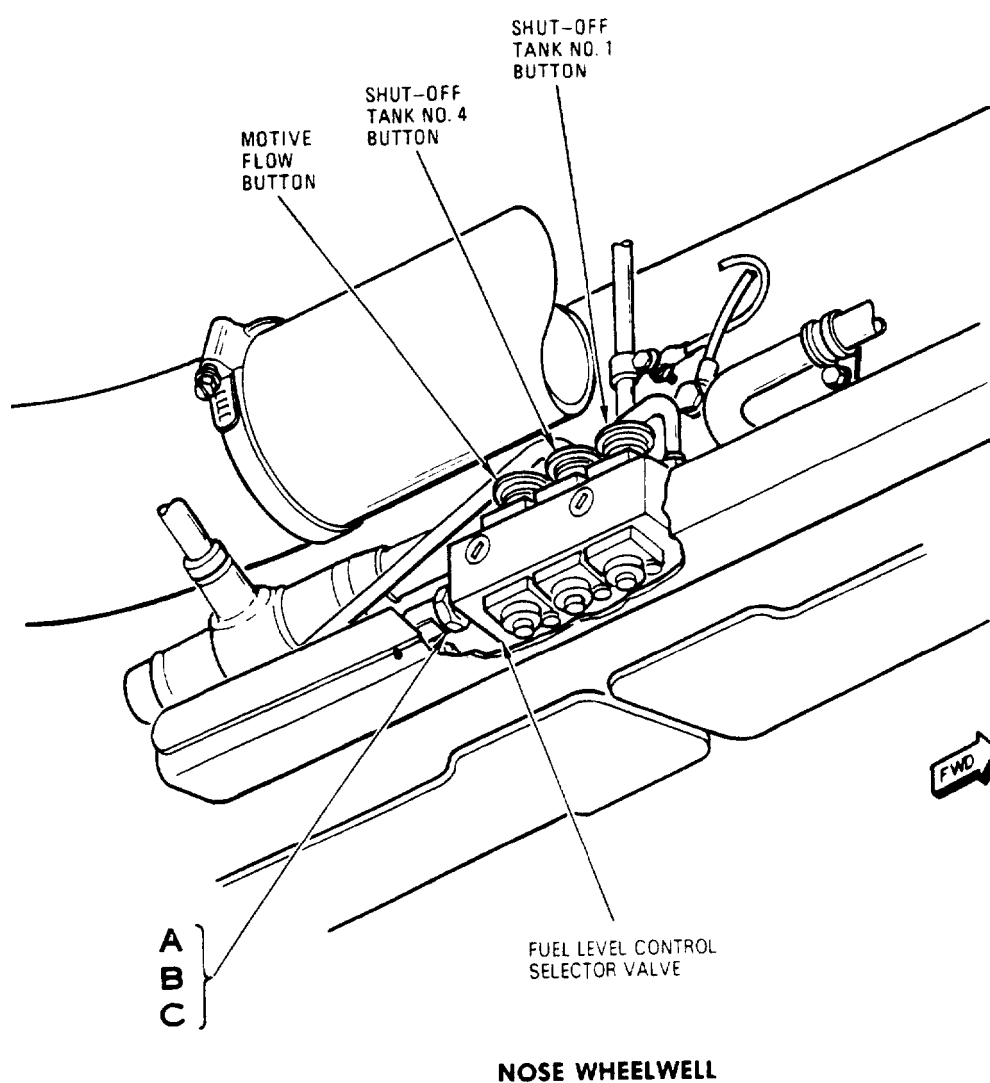
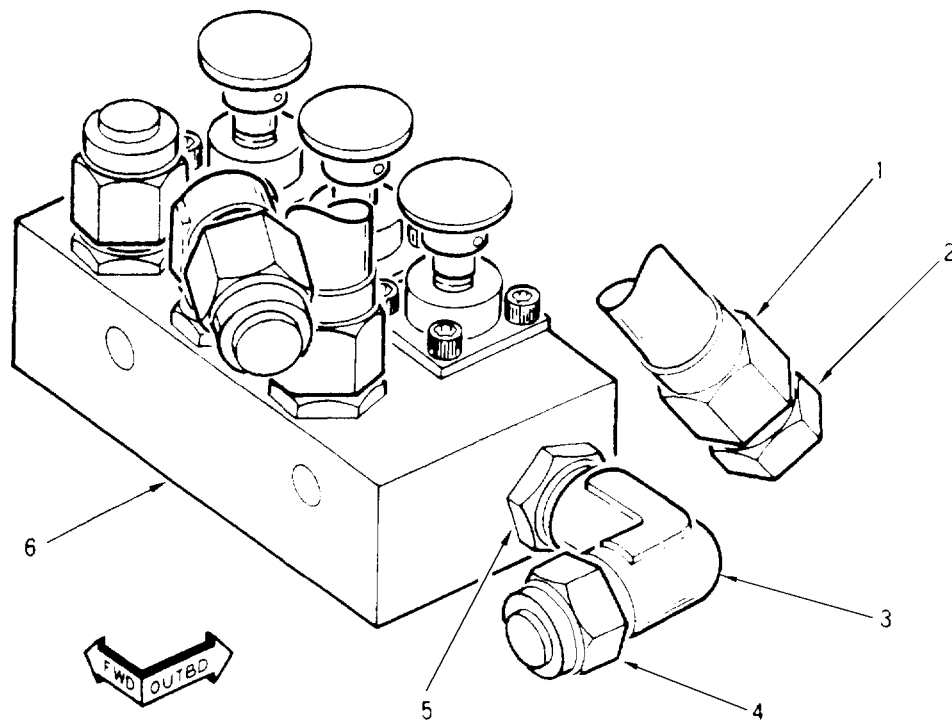
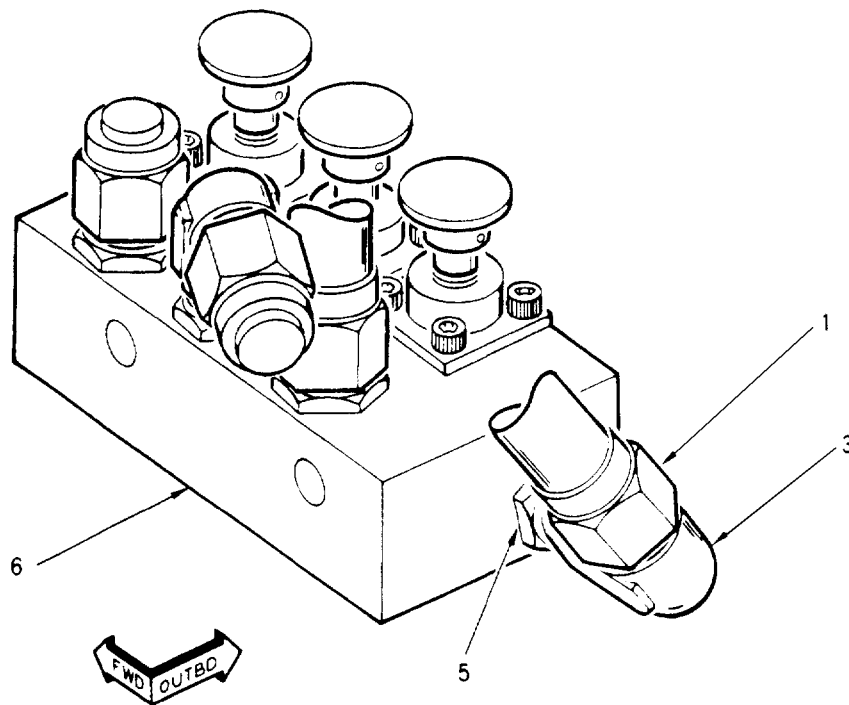


Figure 2. Fuel Level Control Selector Valve Hookup (Sheet 1 of 3)



A



B

Figure 2. Fuel Level Control Selector Valve Hookup (Sheet 2)

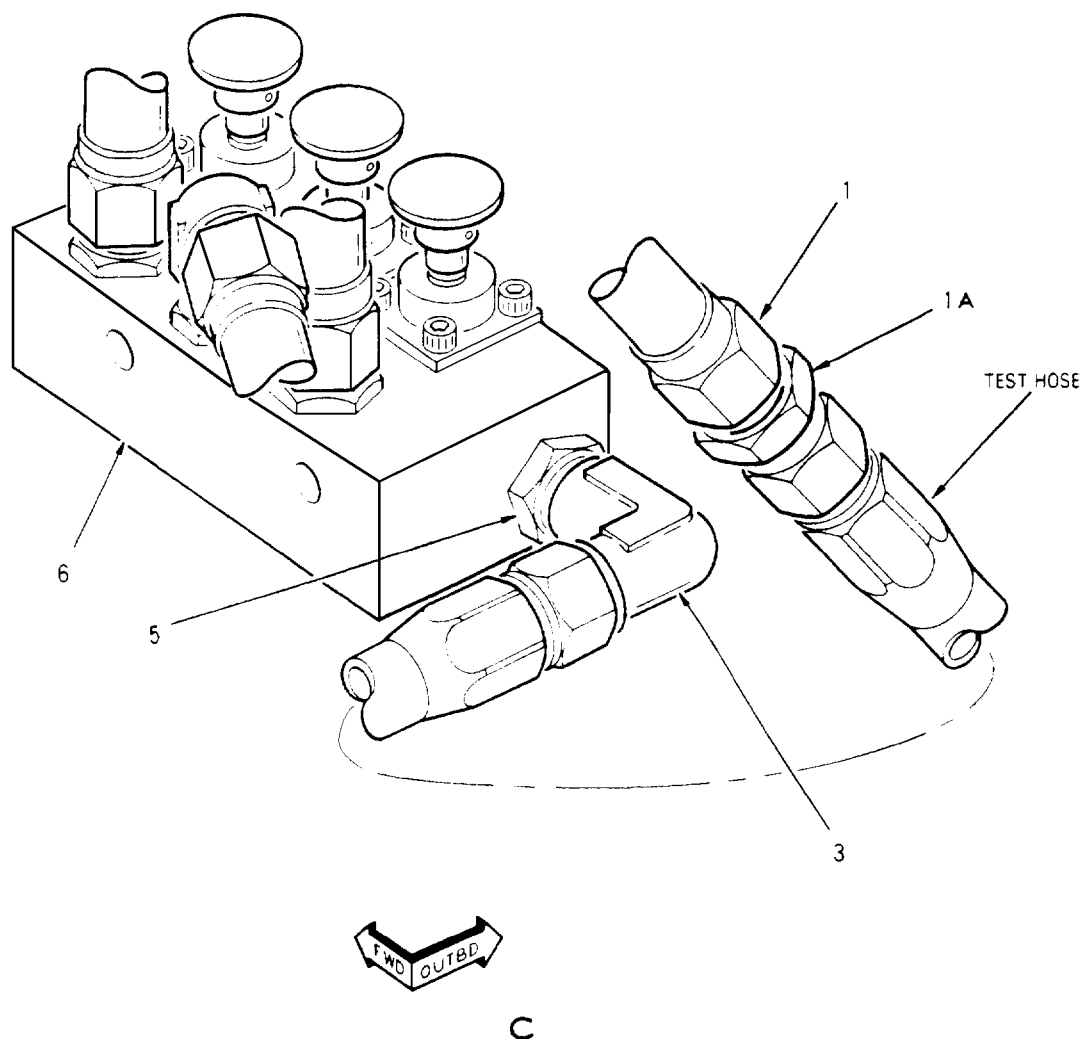
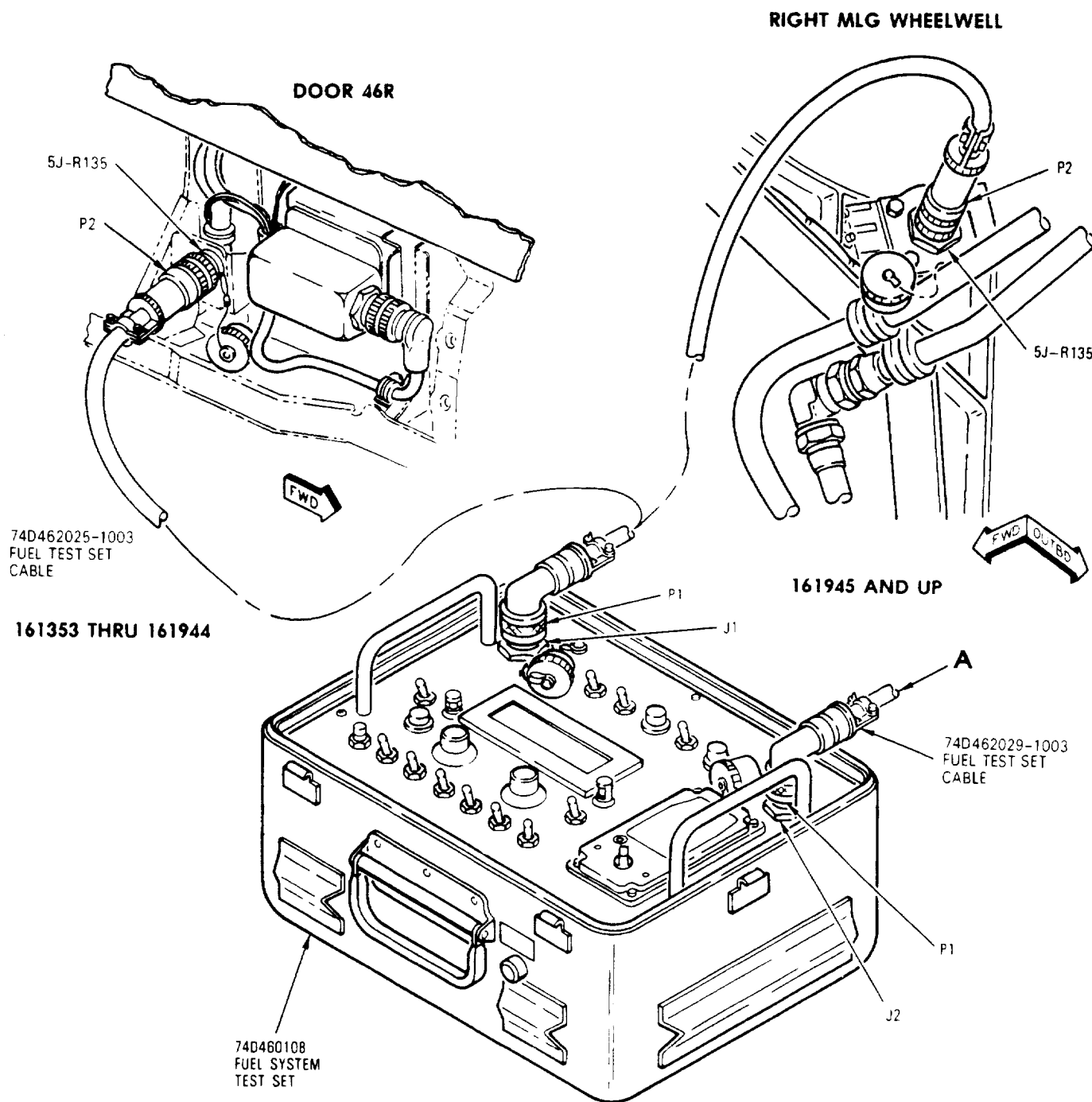
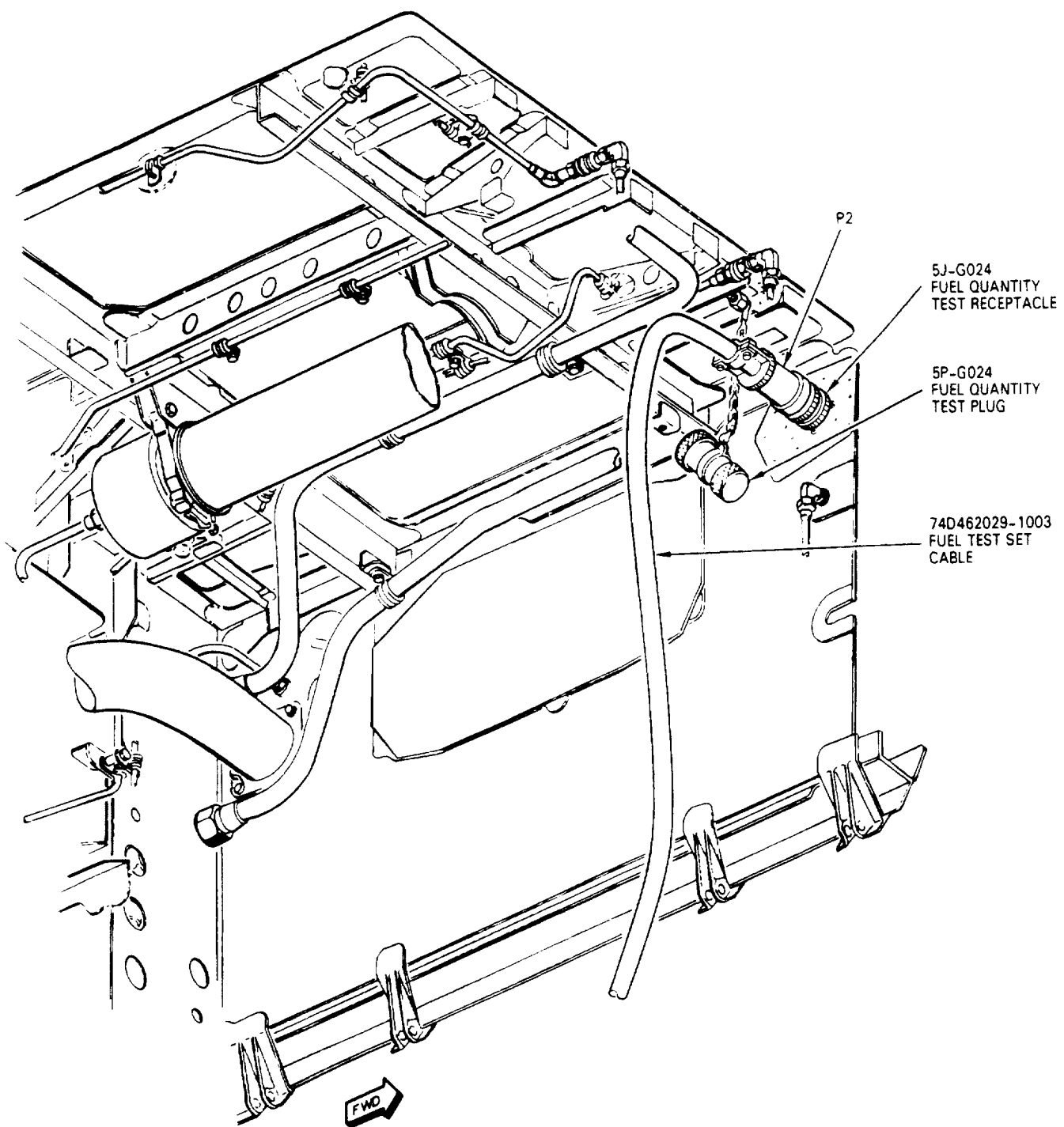


Figure 2. Fuel Level Control Selector Valve Hookup (Sheet 3)



12090301

Figure 3. Fuel System Test Set Hookup (Sheet 1 of 2)

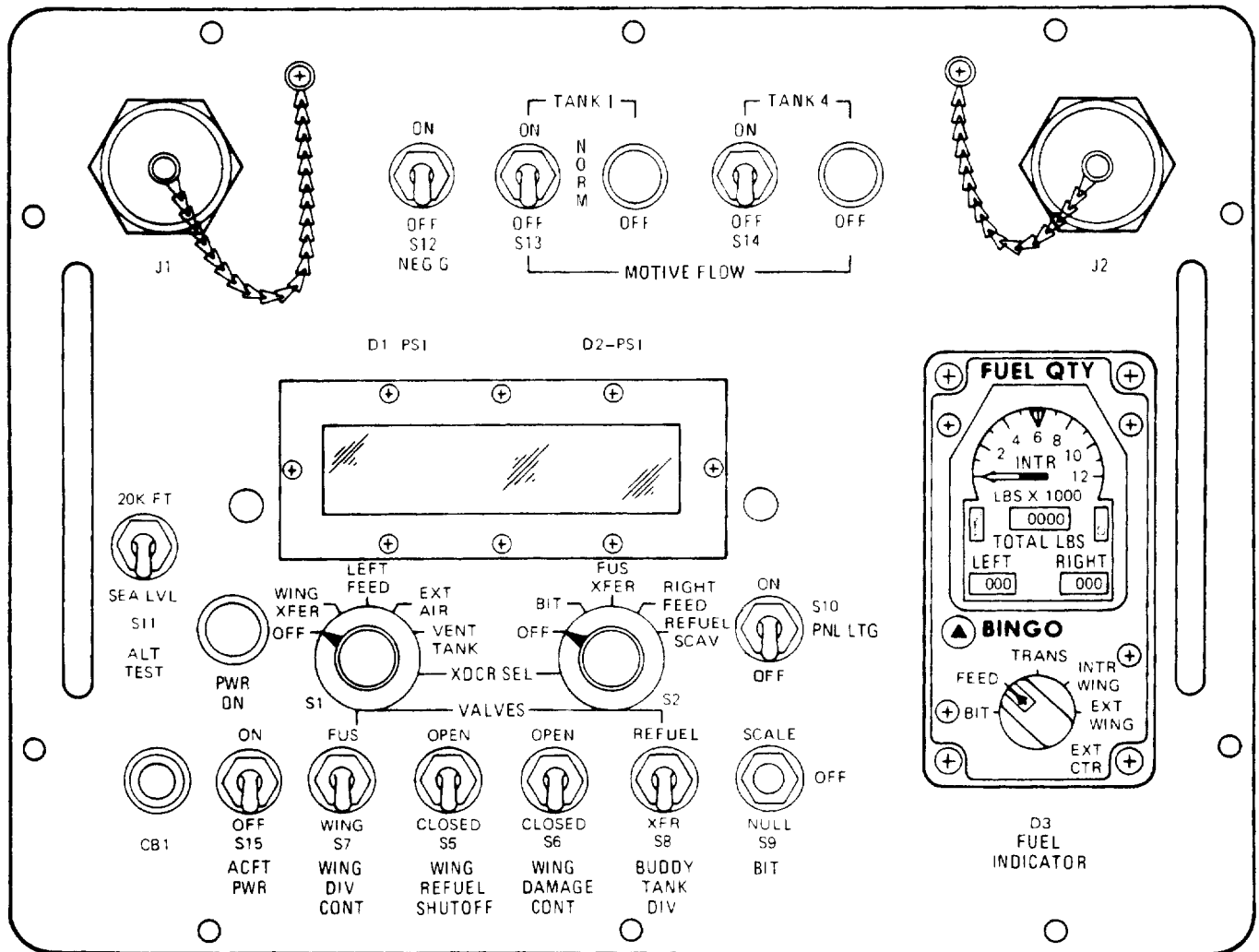


A

NOSE WHEELWELL, LEFT SIDE

12090302

Figure 3. Fuel System Test Set Hookup (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1003

A

Figure 4. Fuel System Test Set Controls and Displays

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000
Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Circuit Breaker 5CBC050 Trips - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND 161353 THRU 161519 AFTER F/A-18 AFC 39, Table 13	26
Circuit Breaker 5CBC115 Trips, Table 12	24
Circuit Breaker 5CBC157 Trips - 161520 THRU 161761, BEFORE F/A-18 AFC 53 AND 39, Table 10	18
Circuit Breaker 5CBC157 Trips - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND 39, Table 11	21
Fuel Tank No. 1 Failed Transfer Leak Test, Table 5	10
Fuel Tank No. 2 Failed Transfer Leak Test, Table 6	12
Fuel Tank No. 3 Failed Transfer Leak Test, Table 7	14
Fuel Tank No. 4 Failed Transfer Leak Test, Table 8	15
Left Wing Fuel Quantity Does Not Increase, Table 4	8
Right Wing Fuel Quantity Does Not Increase, Table 2	4
TK2 V POS and TK3 V POS Lights Not On, Table 1	2
Transfer Leak Test Troubleshooting Component Locator, Figure 1	30
Wing Damage Fuel Shutoff Valve Did Not Close, Table 3	7
Wing Tank Failed Transfer Leak Test, Table 9	17

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Jul 86	—

Table 1. TK2 V POS and TK3 V POS Lights Not On

Support Equipment Required					
NOTE					
Alternate item type designations or part numbers are listed in parentheses.					
Part Number or Type Designation	Nomenclature				
260-6XLP (AN/USM-311)	Multimeter				
Materials Required					
None					
NOTE					
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.					
For component location, refer to figure 1, WP014 00.					
Malfunction is caused by one of the items listed below:					
Aircraft Wiring FUEL CHECK PANEL FUEL V POSITION Circuit Breaker No. 8 Circuit Breaker/Relay Panel Assembly					
Procedure	No	Yes			
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <table><tr><td>a. If TK2 V POS and TK3 V POS lights are off, make sure FUEL V POSITION circuit breaker on no. 8 circuit breaker/relay panel (door 10L) is closed, then do step b</td><td>-</td><td>-</td></tr></table>			a. If TK2 V POS and TK3 V POS lights are off, make sure FUEL V POSITION circuit breaker on no. 8 circuit breaker/relay panel (door 10L) is closed, then do step b	-	-
a. If TK2 V POS and TK3 V POS lights are off, make sure FUEL V POSITION circuit breaker on no. 8 circuit breaker/relay panel (door 10L) is closed, then do step b	-	-			

Table 1. TK2 V POS and TK3 V POS Lights Not On (Continued)

Procedure	No	Yes
b. Turn off electrical power (A1-F18AC-LMM-000). Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00). Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-B019, pin 7?	c	d
c. Turn off electrical power (A1-F18AC-LMM-000). Open door 10L (A1-F18AC-LMM-010). Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly. Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 52P-C159G, pin 87?	e	f
d. Set TK INTCON V CHK switch to CHK. Does continuity exist between: 5J-B019, pin 7 and 5J-B019, pin 8 5J-B019, pin 7 and 5J-B019, pin 9?	g	h
e. Isolate between no. 8 circuit breaker/relay panel assembly circuit breaker 5CBC023 (A1-F18AC-420-300, WP031 00) and do step i	-	-
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-
g. Repair or replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step i	-	-
h. Does a ground exist at 5P-B019, pin 6?	f	g
i. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed: (1) FUEL CHECK PANEL (2) 5P-B019 (3) 52P-C159G (4) Door 10L	-	-

Table 2. Right Wing Fuel Quantity Does Not Increase

Support Equipment Required						
<div>NOTE</div> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table><thead><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr></thead><tbody><tr><td>260-6XLP (AN/USM-311)</td><td>Multimeter</td></tr></tbody></table> <div>Materials Required</div> <p>None</p> <div>NOTE</div> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 1, WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <div>Aircraft Wiring No. 8 Circuit Breaker/Relay Panel Assembly Right Diverter Valve 5CBC115 WING FUEL Circuit Breaker EXT LT Control Panel Assembly</div>			Part Number or Type Designation	Nomenclature	260-6XLP (AN/USM-311)	Multimeter
Part Number or Type Designation	Nomenclature					
260-6XLP (AN/USM-311)	Multimeter					
Procedure	No	Yes				
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <div>1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity.</div>						
a. On test set, is switch S7 set to WING?	b	c				

Table 2. Right Wing Fuel Quantity Does Not Increase (Continued)

Procedure	No	Yes
b. Set switch S7 to WING and continue transfer test	-	-
c. On cockpit EXT LT control panel assembly, is INTR WING switch set to NORM?	d	e
d. Set switch to NORM and continue transfer test	-	-
e. Do substeps below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 40 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-R120.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-R120, pin 10?	f	g
f. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C159G, pin 44 to 5P-R120, pin 10?	h	i
g. Does a ground exist at 5P-R120, pin 8 and pin 9?	h	j
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step q	-	-
i. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Does 28vdc exist at 52J-C159G, pin 42?	k	l
j. Replace right diverter valve (A1-F18AC-460-300, WP146 00) and do step q	-	-
k. Turn off electrical power (A1-F18AC-LMM-000). Isolate between the 5CBC115 circuit breaker and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step q	-	-
l. Do substeps below:		

Table 2. Right Wing Fuel Quantity Does Not Increase (Continued)

Procedure	No	Yes
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-H091 from EXT LT control panel assembly.		
(3) Does continuity exist between 52P-C159G, pin 42 and 5P-H091, pin 16?	h	m
m. Remove EXT LT control panel assembly (A1-F18AC-440-300, WP004 00). With INTR switch in NORM, does continuity exist between 52J-H091, pin 16 and pin 13?	n	o
n. Replace EXT LT control panel assembly (A1-F18AC-440-300, WP004 00) and do step q	-	-
o. Does continuity exist between 52P-C159G pin 16 and 52P-H091, pin 13?	h	p
p. Isolate between the 5K-C052 fuel low level relay no. 2 and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step q	-	-
q. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connect 5P-R120 (door 40)		
(2) Connect 52P-C159G (door 10L)		
(3} Doors 10L and 40 (A1-F18AC-LMM-010)		
(4) EXT LT control panel assembly and connector 52P-H091	-	-

Table 3. Wing Damage Fuel Shutoff Valve Did Not Close

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Wing Damage Fuel Shutoff Valve		
Procedure	No	Yes
a. Do substeps listed below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 40 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-R120. Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-R120 pin 13 and a ground at pins 11 and 12?	b	c
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from:		
5P-R120, pin 11 to ground		
5P-R120, pin 12 to ground		
5P-R120, pin 13 to 5J-135, pin 54 and do step d	-	-
c. Replace wing damage fuel shutoff valve (A1-F18AC-460-300, WP122 00) and do step d	-	-
d. Make sure connector 5P-R120 is connected and door 40 is installed	-	-

Table 4. Left Wing Fuel Quantity Does Not Increase

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring EXT LT Control Panel Assembly Left Diverter Valve No. 8 Circuit Breaker/Relay Panel Assembly 5CBC115 WING FUEL Circuit Breaker		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. On test set, is switch S7 set to WING?	b	c

Table 4. Left Wing Fuel Quantity Does Not Increase (Continued)

Procedure	No	Yes
b. Set switch S7 to WING and continue transfer test	-	-
c. On cockpit EXT LT control panel assembly, is INTR WING switch set to NORM?	d	e
d. Set switch to NORM and continue transfer test	-	-
e. Do substeps below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 40 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-R120.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-R120, pin 7?	f	g
f. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C159G, pin 44 to 5P-R120, pin 7?	h	i
g. Does a ground exist at 5P-R120, pin 5 and pin 6?	h	j
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step q	-	-
i. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Does 28vdc exist at 52J-C159G, pin 42?	k	l
j. Replace left diverter valve (A1-F18AC-460-300, WP146 00) and do step q	-	-
k. Turn off electrical power (A1-F18AC-LMM-000). Isolate between the 5CBC115 circuit breaker and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step q	-	-
l. Do substeps below:		

Table 4. Left Wing Fuel Quantity Does Not Increase (Continued)

Procedure	No	Yes
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-H091.		
(3) Does continuity exist between 52P-C159G, pin 42 and 5P-H091, pin 16?	h	m
m. Remove EXT LT control panel assembly (A1-F18AC-440-300, WP004 00). With INTR switch in NORM, does continuity exist between 52J-H091, pin 16 and pin 13?	n	o
n. Replace EXT LT control panel assembly (A1-F18AC-440-300, WP004 00) and do step q	-	-
o. Does continuity exist between 52P-C159G pin 16 and 52P-H091, pin 13?	h	p
p. Isolate between the 5K-C052 fuel low level relay no. 2 and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step q	-	-
q. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connect 5P-R120 (door 40)		
(2) Connect 52P-C159G (door 10L)		
(3) Doors 10L and 40 (A1-F18AC-LMM-010)		
(4) EXT LT control panel assembly and connector 52P-H091	-	-

Table 5. Fuel Tank No. 1 Failed Transfer Leak Test

Support Equipment Required
None
Materials Required
None
NOTE
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.
For component location, refer to figure 1.

Table 5. Fuel Tank No. 1 Failed Transfer Leak Test (Continued)

Malfunction is caused by one of the items listed below:		
Aircraft Piping Fuel Transfer Precheck Valve Fuselage Transfer Jet Ejector Transfer Control Valve Transfer Manifold Transfer Shutoff Valve or Pilot Valve		
Procedure	No	Yes
a. Do substeps below: (1) Turn off fuel servicing equipment. (2) Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00). (3) Malfunction is caused by leakage of one of the items below. Inspect each item and attached piping (fig 1). Replace components as required and do step b. (a) Fuel transfer precheck valve (A1-F18AC-460-300, WP129 00). (b) Fuselage transfer jet ejector (A1-F18AC-460-300, WP106 00). (c) Transfer shutoff valve or pilot valve (A1-F18AC-460-300, WP105 00). (d) On 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39, transfer control valve A1-F18AC-460-300, WP105 01). (e) Transfer manifold, transfer and transfer motive flow aircraft piping (A1-F18AC-460-300, WP012 00)	-	-
b. Do substeps below: (1) Set master precheck valve handle to DOWN OFF. (2) Disconnect fuel servicing equipment. (3) Close door 8 (A1-F18AC-LMM-010). (4) On FUEL system control panel, set EXT TANKS WING and CTR switch to NORM. (5) Disconnect external electrical power (A1-F18AC-LMM-000).		

Table 5. Fuel Tank No. 1 Failed Transfer Leak Test (Continued)

Procedure	No	Yes
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;">WARNING</div> <p>To prevent fuel system malfunctions, the motive flow tube to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p>		
(6) Position safety container under motive flow tube (1, fig 2, WP012 08) to catch residual fuel.		
(7) Disconnect motive flow tube (1).		
(8) Loosen nut (5).		
(9) Rotate elbow (3) down. Tighten nut (5).		
(10) Install cap (4) on elbow (3) (QA).		
(11) Install plug (2) in tube (1) (QA)	-	-

Table 6. Fuel Tank No. 2 Failed Transfer Leak Test

Support Equipment Required
None
Materials Required
None
NOTE
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.
For component location, refer to figure 1.
Malfunction is caused by one of the items listed below:
Aircraft Piping
Transfer Manifold
Transfer Shutoff Valve

Table 6. Fuel Tank No. 2 Failed Transfer Leak Test (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00).		
(3) Malfunction is caused by leakage of one of the items below. Inspect each item and attached piping (fig 1). Replace components as required and do step b.		
(a) Transfer manifold, transfer and transfer motive flow aircraft piping (A1-F18AC-460-300, WP020 00).		
(b) Transfer shutoff valve (A1-F18AC-460-300, WP108 00)	-	-
b. Do substeps below:		
(1) Set master precheck valve handle to DOWN OFF.		
(2) Disconnect fuel servicing equipment.		
(3) Close door 8 (A1-F18AC-LMM-010).		
(4) On FUEL system control panel, set EXT TANKS WING and CTR switch to NORM.		
(5) Disconnect external electrical power (A1-F18AC-LMM-000).		
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;">WARNING</div> <p>To prevent fuel system malfunctions, the motive flow tube to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p>		
(6) Position safety container under motive flow tube (1, fig 2, WP012 08) to catch residual fuel.		
(7) Disconnect motive flow tube (1).		
(8) Loosen nut (5).		
(9) Rotate elbow (3) down. Tighten nut (5).		
(10) Install cap (4) on elbow (3) (QA).		
(11) Install plug (2) in tube (1) (QA)	-	-

Table 7. Fuel Tank No. 3 Failed Transfer Leak Test

Support Equipment Required		
None		
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1.		
Malfunction is caused by one of the items listed below:		
Aircraft Piping		
Defuel Valve		
Transfer Manifold		
Transfer Shutoff Valve		
a. Do substeps below:		
(1) Turn off fuel servicing equipment.		
(2) Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00).		
(3) Malfunction is caused by leakage of one of the items below. Inspect each item and attached piping (fig 1). Replace components as required and do step b.		
(a) Defuel Valve (A1-F18AC-460-300, WP056 00).		
(b) Transfer manifold, transfer and transfer motive flow piping (A1-F18AC-460-300, WP024 00).		
(c) Transfer shutoff valve (A1-F18AC-460-300, WP112 00)	-	-
b. Do substeps below:		
(1) Set master precheck valve handle to DOWN OFF.		
(2) Disconnect fuel servicing equipment.		
(3) Close door 8 (A1-F18AC-LMM-010).		
(4) On FUEL system control panel, set EXT TANKS WING and CTR switch to NORM.		
(5) Disconnect external electrical power (A1-F18AC-LMM-000).		

Table 7. Fuel Tank No. 3 Failed Transfer Leak Test (Continued)

<div style="border: 2px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">WARNING</div> <p>To prevent fuel system malfunctions, the motive flow tube to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p>		
(6) Position safety container under motive flow tube (1, fig 2, WP012 08) to catch residual fuel.		
(7) Disconnect motive flow tube (1).		
(8) Loosen nut (5).		
(9) Rotate elbow (3) down. Tighten nut (5).		
(10) Install cap (4) on elbow (3) (QA).		
(11) Install plug (2) in tube (1) (QA)	-	-

Table 8. Fuel Tank No. 4 Failed Transfer Leak Test

<p style="text-align: center;">Support Equipment Required</p> <p style="text-align: center;">None</p> <p style="text-align: center;">Materials Required</p> <p style="text-align: center;">None</p> <p style="text-align: center;">NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 1.</p> <p>Malfunction is caused by one of the items listed below:</p> <ul style="list-style-type: none"> Aircraft Piping Fuel Transfer Precheck Valve Fuselage Transfer Jet Ejector Transfer Control Valve Transfer Manifold Transfer Shutoff Valve or Pilot Valve 		
Procedure	No	Yes
a. Do substeps below:		
(1) Turn off fuel servicing equipment.		

Table 8. Fuel Tank No. 4 Failed Transfer Leak Test (Continued)

Procedure	No	Yes
(2) Do fuel tank maintenance precautions and general preparation (A1-F18AC-460-300, WP013 00).		
(3) Malfunction is caused by leakage of one of the items below. Inspect each item and attached piping (fig 1). Replace components as required and do step b.		
(a) Transfer precheck valve, 161353 THRU 161965 BEFORE F/A-18 AFC 53 (A1-F18AC-460-300, WP130 00).		
(b) Fuselage transfer jet ejector (A1-F18AC-460-300, WP117 00).		
(c) Transfer shutoff valve or pilot valve (A1-F18AC-460-300, WP116 00).		
(d) Transfer manifold, transfer and transfer motive flow aircraft piping (A1-F18AC-460-300, WP028 00)	-	-
(e) Transfer control valve, 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 (A1-F18AC-460-300, WP116 03).		
b. Do substeps below:		
(1) Set master precheck valve handle to DOWN OFF.		
(2) Disconnect fuel servicing equipment.		
(3) Close door 8 (A1-F18AC-LMM-010).		
(4) On FUEL system control panel, set EXT TANKS WING and CTR switch to NORM.		
(5) Disconnect external electrical power (A1-F18AC-LMM-000).		
<div style="border: 2px solid black; padding: 5px; text-align: center; margin: 10px auto; width: fit-content;">WARNING</div> <p>To prevent fuel system malfunctions, the motive flow tube to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p>		
(6) Position safety container under motive flow tube (1, fig 2, WP012 08) to catch residual fuel.		
(7) Disconnect motive flow tube (1).		
(8) Loosen nut (5).		

Table 8. Fuel Tank No. 4 Failed Transfer Leak Test (Continued)

Procedure	No	Yes
(9) Rotate elbow (3) down. Tighten nut (5).		
(10) Install cap (4) on elbow (3) (QA).		
(11) Install plug (2) in tube (1) (QA)	-	-

Table 9. Wing Tank Failed Transfer Leak Test

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 1.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Piping Wing Transfer Jet Ejector Transfer Manifold Wing Transfer Motive Flow Shutoff Valve or Pilot Valve</p>		
Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Turn off fuel servicing equipment.</p> <p>(2) Malfunction is caused by leakage of one of the items below. Inspect each item and attached piping (fig 1). Replace components as required and do step b.</p> <p>(a) Wing transfer jet ejector and motive flow shutoff valve (A1-F18AC-460-300, WP124 00).</p> <p>(b) Wing transfer motive flow pilot valve (A1-F18AC-460-300, WP123 00).</p> <p>(c) Transfer manifold, transfer and transfer motive flow aircraft piping (A1-F18AC-460-300, WP123 00 and WP124 00)</p> <p>b. Do substeps below:</p> <p>(1) Set master precheck valve handle to DOWN OFF.</p>	-	-

Table 9. Wing Tank Failed Transfer Leak Test (Continued)

Procedure	No	Yes
(2) Disconnect fuel servicing equipment. (3) Close door 8 (A1-F18AC-LMM-010). (4) On FUEL system control panel, set EXT TANKS WING and CTR switch to NORM. (5) Disconnect external electrical power (A1-F18AC-LMM-000).		
<div style="border: 2px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent fuel system malfunctions, the motive flow tube to the fuel level control selector valve must be disconnected and plugged and the MOTIVE FLOW port capped.</p>		
(6) Position safety container under motive flow tube (1, fig 2, WP012 08) to catch residual fuel. (7) Disconnect motive flow tube (1). (8) Loosen nut (5). (9) Rotate elbow (3) down. Tighten nut (5). (10) Install cap (4) on elbow (3) (QA).		
(11) Install plug (2) in tube (1) (QA)	-	-

Table 10. Circuit Breaker 5CBC157 Trips - 161520 THRU 161761, BEFORE F/A-18 AFC 53 AND 39

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 10. Circuit Breaker 5CBC157 Trips - 161520 THRU 161761, BEFORE F/A-18 AFC 53 AND 39 (Continued)

NOTE		
<p>CG Control System Schematic (A1-F18AC-460-500, WP014 00), may be used while doing this procedure.</p> <p>For component location, refer to figure 1, WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring</p> <p>No. 1 Fuel Tank Transfer Control Valve</p> <p>No. 7 Circuit Breaker/Relay Panel Assembly</p> <p>No. 8 Circuit Breaker/Relay Panel Assembly</p>		
Procedure	No	Yes
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> WARNING </div> <p>To prevent possible explosion and fire in fuel tanks do not close 5CBC157 circuit breaker until malfunction has been found.</p> <p>To prevent possible explosion and fire in fuel tanks, multimeter must be on the RX100 scale to test for shorts on the no. 1 fuel tank transfer control valve.</p> <div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> CAUTION </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pines of connectors listed below:</p> <p style="text-align: center;">52P-C159G</p> <div style="text-align: center; margin-top: 20px;"> NOTE </div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps below:</p> <p>(1) Remove electrical power (A1-F18AC-LMM-000).</p>		


**Table 10. Circuit Breaker 5CBC157 Trips - 161520 THRU 161761,
BEFORE F/A-18 AFC 53 AND 39 (Continued)**

Procedure	No	Yes
(2) Refuel aircraft full (A1-F18AC-PCM-000).		
(3) On F/A-18A, remove door 18 (A1-F18AC-LMM-010).		
(4) On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010).		
(5) Disconnect 5P-E035 at no. 1 fuel tank on dorsal deck.		
(6) Does continuity exist between 5J-E035 pin 13 and ground?	b	c
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057D (door 10L).		
(3) Does continuity exist from:		
52P-C057D pin 40 to 5P-E035 pin 13?	d	e
c. Replace no. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01) and do step i	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-
e. Does continuity exist between 52P-C057D pin 37 and pin 55?	f	g
f. Disconnect 52P-C159F. Does continuity exist between:		
52P-C057D pin 55 and 52P-C159F pin 31		
52P-C057D pin 37 and 52P-C159F pin 23?	d	h
g. Isolate between the 5CBC157 circuit breaker, 5K-C159 and 5K-C158 relays, and the no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step i	-	-
h. Isolate between relay 5K-C052 and no. 8 circuit breaker relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step i	-	-
i. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Connectors 52P-C057D, 52P-C159F, and 5P-E035.		
(2) Doors 10L, 18, internal door CPJ	-	-

**Table 11. Circuit Breaker 5CBC157 Trips - 161924 AND UP, ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 AND 39**

Support Equipment Required				
<p>NOTE</p> <p>Alternate item type designations or part numbers are listed in parentheses.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; vertical-align: top; padding: 5px;"> <p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p> </td> <td style="width: 40%; vertical-align: top; padding: 5px;"> <p>Nomenclature</p> <p>Multimeter</p> </td> </tr> </table>			<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>
<p>Part Number or Type Designation</p> <p>260-6XLP (AN/USM-311)</p>	<p>Nomenclature</p> <p>Multimeter</p>			
<p>Materials Required</p> <p>None</p>				
<p>NOTE</p> <p>CG Control System Schematic (A1-F18AC 460-500, WP014 00), may be used while doing this procedure.</p> <p>For component location, refer to figure 1, WP014 00.</p>				
<p>Malfunction is caused by one of the items listed below:</p> <ul style="list-style-type: none"> Aircraft Wiring No. 1 Fuel Tank Transfer Control Valve No. 7 Circuit Breaker/Relay Panel Assembly No. 8 Circuit Breaker/Relay Panel Assembly Tank 4 Transfer Control Valve 				
Procedure	No	Yes		
<div style="text-align: center; margin-bottom: 20px;"> <div style="border: 2px solid black; padding: 5px; display: inline-block;">WARNING</div> </div> <p>To prevent possible explosion and fire in fuel tanks do not close 5CBC157 circuit breaker until malfunction has been found.</p> <p>To prevent possible explosion and fire in fuel tanks, multimeter must be on the RX100 scale to test for shorts on the no. 1 or no. 4 fuel tank transfer control valve.</p> <div style="text-align: center; margin-bottom: 20px;"> <div style="border: 2px solid black; padding: 5px; display: inline-block;">CAUTION</div> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p>				

**Table 11. Circuit Breaker 5CBC157 Trips - 161924 AND UP, ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 AND 39 (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>52P-C159F</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Refuel aircraft full (A1-F18AC-PCM-000).		
(3) On F/A-18A, remove door 18 (A1-F18AC-LMM-010).		
(4) On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010).		
(5) Disconnect 5P-E035.		
(6) Does continuity exist between 5J-E035 pin 13 and ground?	b	c
b. Do substeps below:		
(1) Remove door 40 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-R120.		
(3) Does continuity exist between 5J-R120 pin 4 and ground?	d	e
c. Replace no. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01) and do step j	-	-
d. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		

**Table 11. Circuit Breaker 5CBC157 Trips - 161924 AND UP, ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 AND 39 (Continued)**

Procedure	No	Yes
(2) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057C and 52P-C057D.		
(3) On no. 8 circuit breaker/relay panel assembly, disconnect 52P-C159F.		
(4) Disconnect 5P-G024 from fuel quantity test receptacle (nose wheelwell, left side).		
(5) Does continuity exist from:		
52P-C057C pin D to 5P-R120 pin 4		
52P-C057C pin D to 5P-G024 pin 2		
52P-C057C pin E to 5J-G024 pin 3		
52P-G024 pin 3 to 5P-G024 pin 40		
5J-G024 pin 40 to 5P-E035 pin 13		
52P-C057D pin 37 to 52P-C159F pin 23		
52P-C057D pin 55 to 52P-C159F pin 31?	f	g
e. Replace tank no. 4 transfer control valve (A1-F18AC-460-300, WP116 03) and do step j	-	-
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j	-	-
g. Does continuity exist from 52J-C159F pin 31 to 52J-C159F pin 23?	h	i
h. Isolate between 5K-C052 fuel low level relay no. 2 and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step j	-	-
i. Isolate between 5CBC157 circuit breaker, 5K-C158 tank 1 transfer control relay, 5K-C159 tank 1 transfer time delay relay, 5K-C161 negative G relay, 5K-C163 fuel low level relay no. 1 and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step j	-	-
j. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected or closed:		
(1) Connectors 52P-C057C, 52P-C057D, 52P-C159F 5P-G024, 5P-E035 and 5P-R120.		
(2) Doors CPJ, 10L, 18, and 40	-	-

Table 12. Circuit Breaker 5CBC115 Trips

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or
Type Designation

Nomenclature

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this procedure.

For component location, refer to figure 1, WP014 00.

Malfunction is caused by one of the items listed below:

- Aircraft Wiring
- Wing Damage Fuel Shutoff Valve
- Left Diverter Valve
- Right Diverter Valve



To prevent possible explosion and fire in fuel tanks do not close 5CBC115 circuit breaker until malfunction has been found.

To prevent possible explosion and fire in fuel tanks, multimeter must be on the RX100 scale to test for shorts on the wing damage fuel shutoff valve and the left and right diverter valve.



To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.

Table 12. Circuit Breaker 5CBC115 Trips (Continued)

Procedure	No	Yes
<p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Refuel aircraft full (A1-F18AC-PCM-000).		
(3) Remove door 40 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-R120.		
(5) Does continuity exist between 5J-R120 pin 7 and ground?	b	c
b. Does continuity exist between 5J-R120 pin 10 and ground?	d	e
c. Replace left diverter valve (A1-F18AC-460-300, WP146 00) and do step i	-	-
d. Does continuity exist between 5J-R120 pin 13 and ground?	f	g
e. Replace right diverter valve (A1-F18AC-460-300, WP146 00) and do step i	-	-
f. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 8 circuit breaker/relay panel assembly disconnect 52P-C159G.		
(3) Does continuity exist from 52P-C159G pin 44 and 5P-R120 pin 10 and 7?	h	i
g. Replace wing damage fuel shutoff valve (A1-F18AC-460-300, WP122 00) and do step i	-	-
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-

Table 12. Circuit Breaker 5CBC115 Trips (Continued)

Procedure	No	Yes
i. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Connectors 5P-R120 and 52P-C159G.		
(2) Doors 10L and 40	-	-

**Table 13. Circuit Breaker 5CBC050 Trips - 161924 AND UP, ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 AND 161353 THRU
161519 AFTER F/A-18 AFC 39**

Support Equipment Required**NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

260-6XLP
(AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 00), may be used while doing this procedure.

For component location, refer to figure 1, WP014 00 and figure 1, WP024 02.

Malfunction is caused by one of the items listed below:

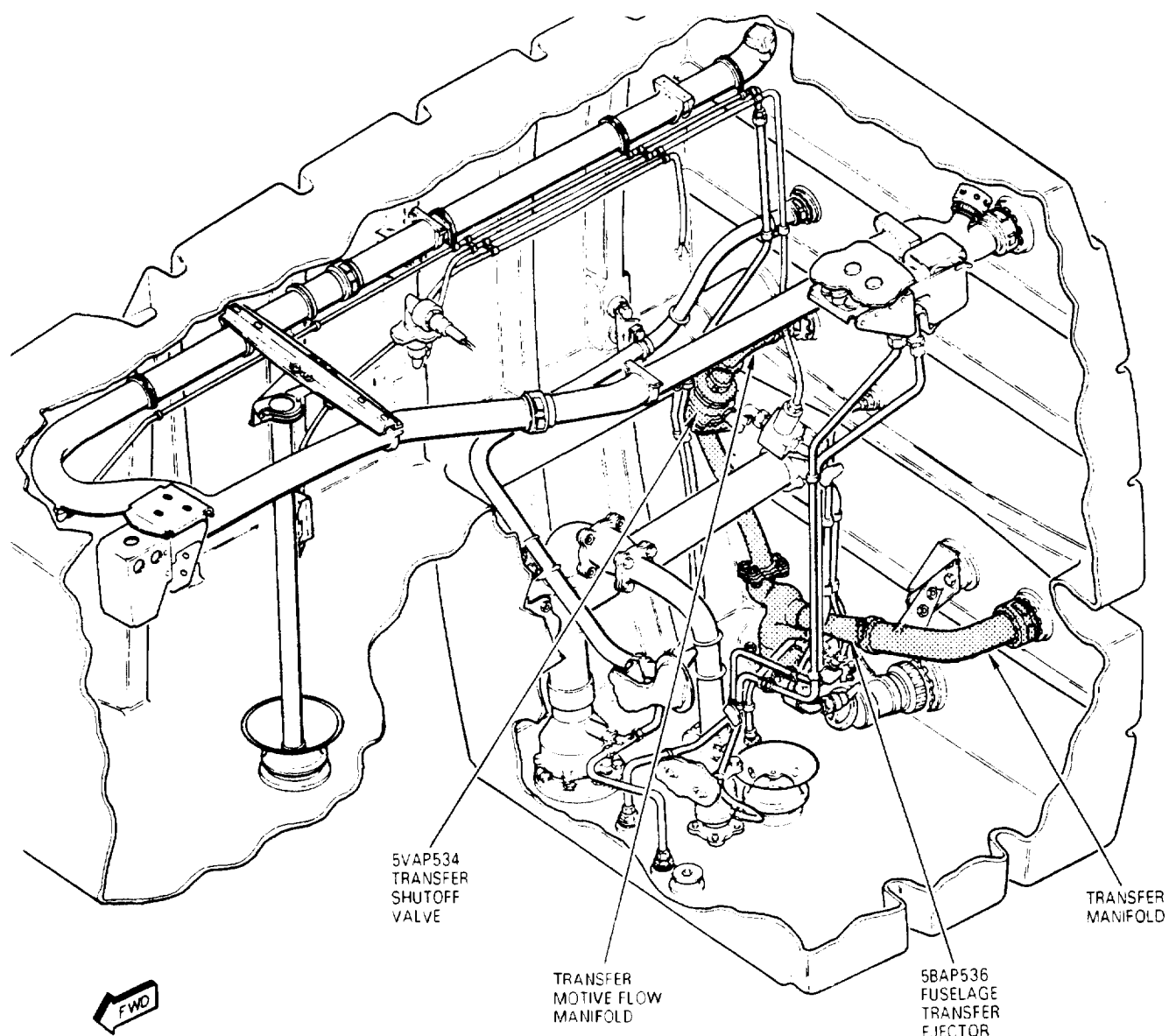
Aircraft Wiring
No. 1 Fuel Tank Fuel Low Level Shutoff Valve
No. 3 Relay Panel Assembly
No. 7 Circuit Breaker/Relay Panel
No. 8 Circuit Breaker/Relay Panel Assembly
No. 9 Relay Panel Assembly
Fuel Low Level Sensing Control Unit

Table 13. Circuit Breaker 5CBC050 Trips - 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND 161353 THRU 161519 AFTER F/A-18 AFC 39 (Continued)

Procedure	No	Yes
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: 150px;"> WARNING </div> <p>To prevent possible explosion and fire in fuel tanks do not close 5CBC050 circuit breaker until malfunction has been found.</p> <p>To prevent possible explosion and fire in fuel tanks, multimeter must be on the RX100 scale to test for shorts on the no. 1 fuel tank fuel level shutoff valve.</p> <div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: 150px;"> CAUTION </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C159F</p> <div style="text-align: center; margin: 10px auto; width: 100px;"> NOTE </div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Refuel aircraft full (A1-F18AC-PCM-000).		
(3) On F/A-18A, remove door 18 (A1-F18AC-LMM-010).		
(4) On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010).		
(5) Disconnect 5P-E035 from no. 1 fuel tank.		
(6) Does continuity exist between 5J-E035 pin 3 and ground?	b	c

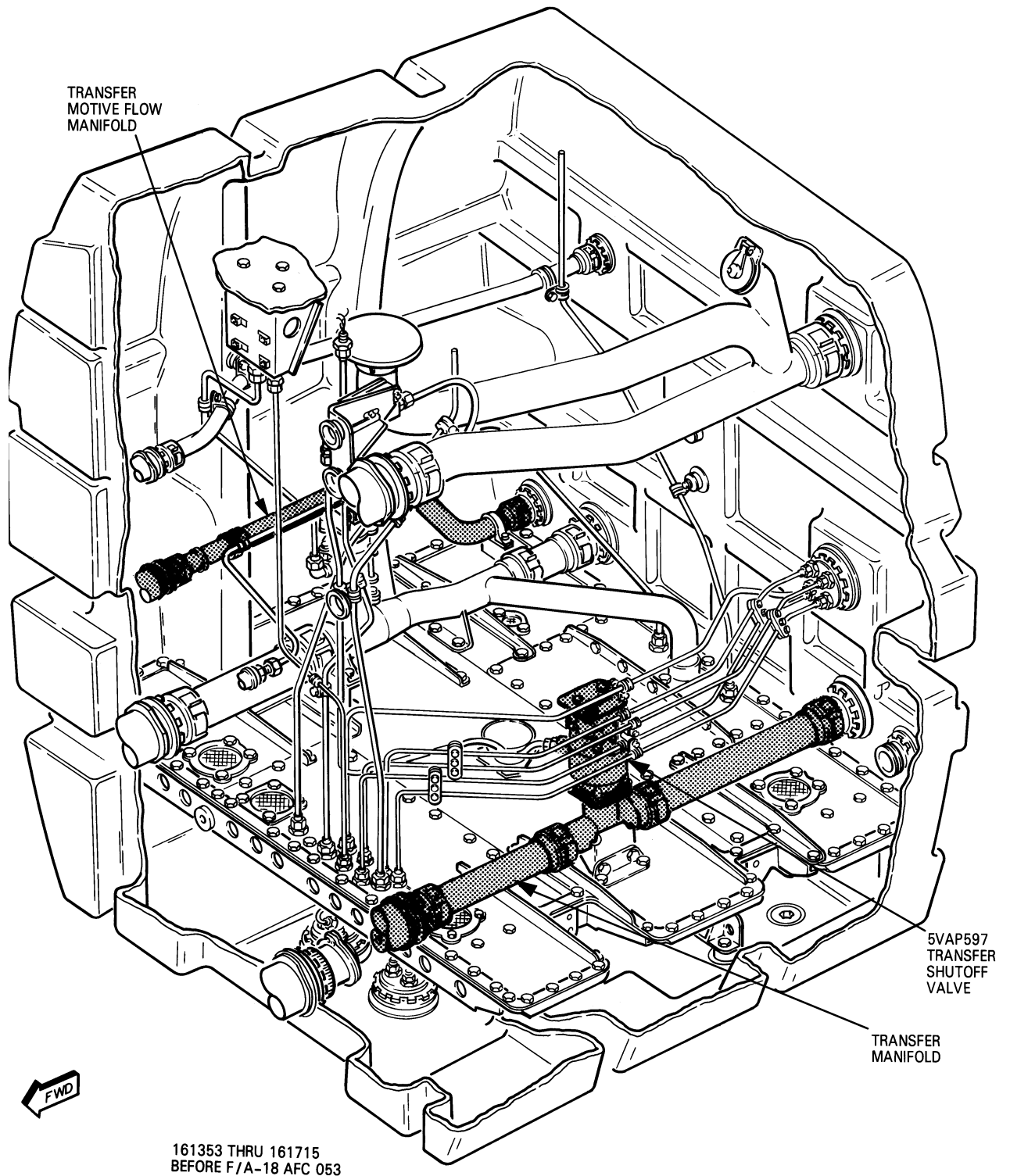
**Table 13. Circuit Breaker 5CBC050 Trips - 161924 AND UP, ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 AND 161353 THRU
161519 AFTER F/A-18 AFC 39 (Continued)**

Procedure	No	Yes
h. Do substeps below:		
(1) On no. 8 circuit breaker/relay panel assembly, disconnect 52P-C159F (door 10L).		
(2) Does continuity exist from 52P-C159F pin 51 to 5P-E035 pin 3?	d	i
i. Does continuity exist from:		
5P-E053 pin 9 to 52P-C159F pin 5		
52P-E059 pin 84 to 52P-C159F pin 19		
52P-E059 pin 84 to 52J-R135 pin 53?	d	j
j. Do substeps below:		
(1) Isolate between 5CBC050 circuit breaker, 5K-C170 fuel low level relay no. 3 and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00).		
(2) Isolate between relays 5K-E055 fuel low level bit relay no. 1, 5K-E165 fuel low level bit relay no. 3 and 5K-E164 fuel low level bit relay no. 2 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00).		
(3) On 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53, isolate between relays 5K-C147 fuel low level time delay relay, 5K-C163 fuel low level relay no. 1 and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00).		
(4) On 162394 AND UP, isolate between relays 5K-C147 fuel low level time delay relay, 5K-C163 fuel low level relay no. 1 and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00).		
(5) Do step k	-	-
k. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Connectors 5P-E035, 5P-E053, 52P-C159G, 52P-C057E, 52P-E059, 52P-C159F, and 52P-C161.		
(2) Doors 10L, 13L, 18 and internal door CPJ	-	-

**NO. 1 FUEL TANK**

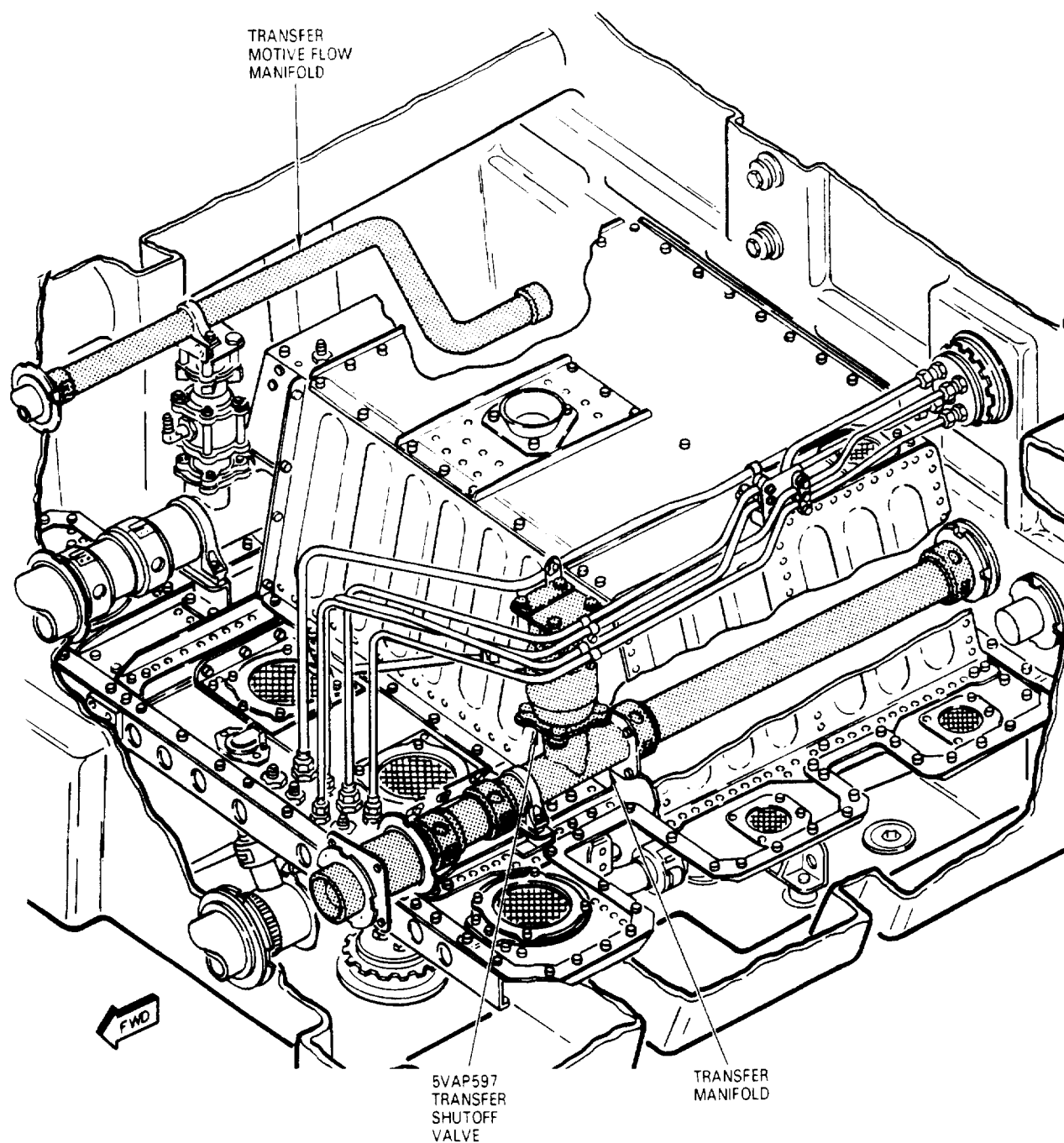
01300101

Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 1 of 8)



01300102

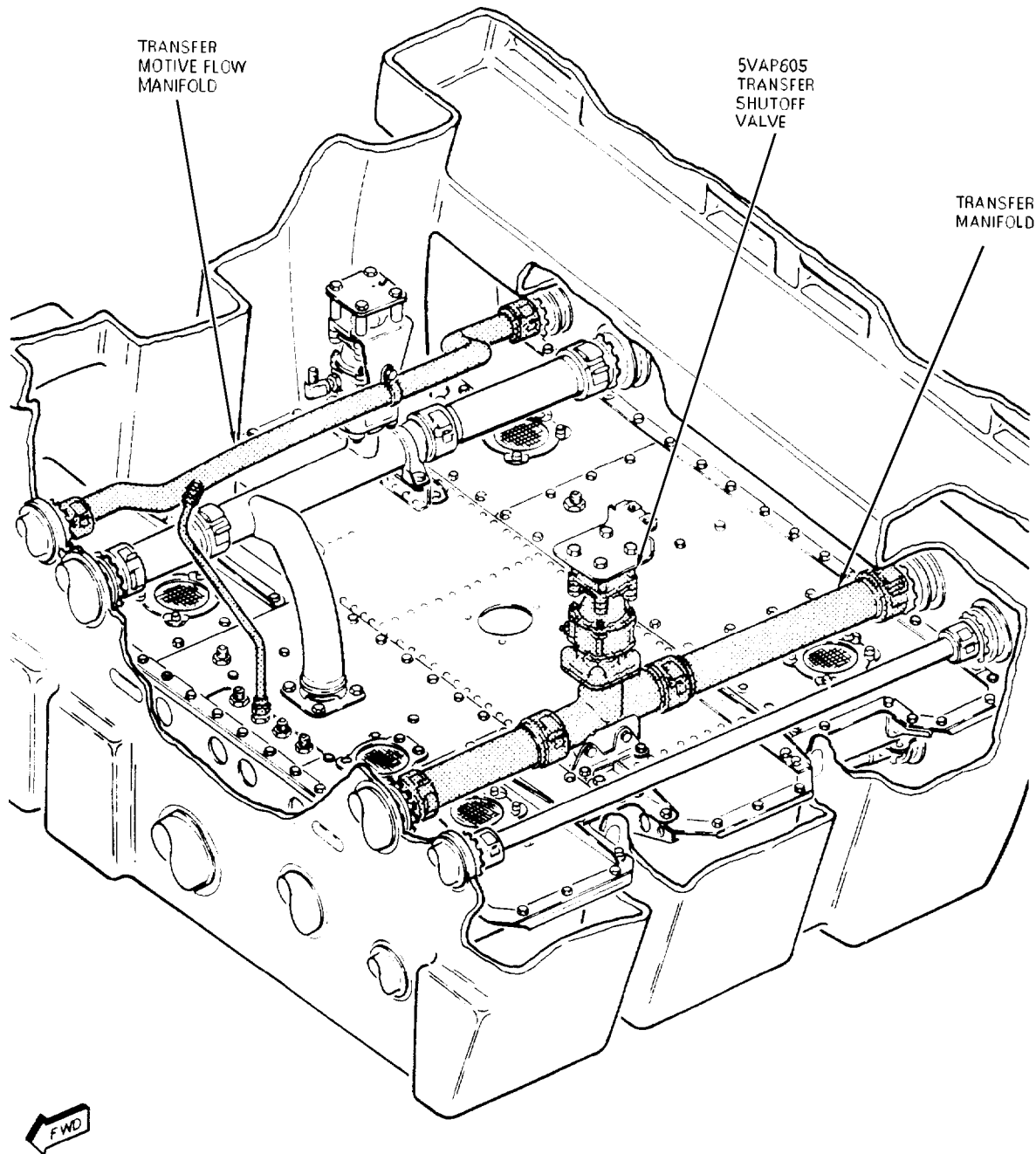
Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 2)

**NO. 2 FUEL TANK**

161716 AND UP,
ALSO 161353 THRU 161715
AFTER F/A-18 AFC 053

01300103

Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 3)

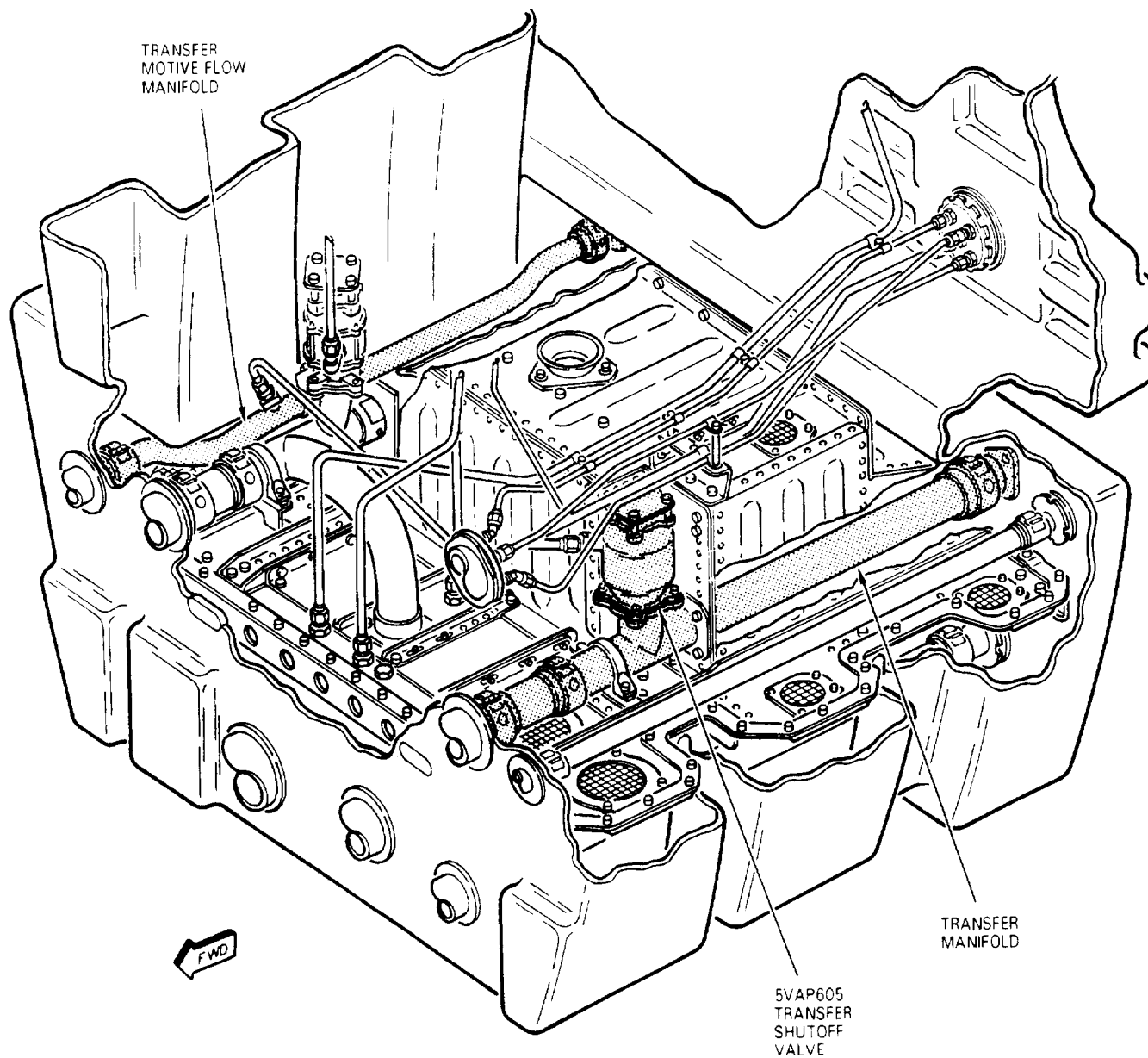


NO. 3 FUEL TANK

161353 THRU 161715
BEFORE F/A-18 AFC 053

01300104

Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 4)

**NO. 3 FUEL TANK**

161716 AND UP,
ALSO 161353 THRU 161715
AFTER F/A-18 AFC 053

01300105

Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 5)

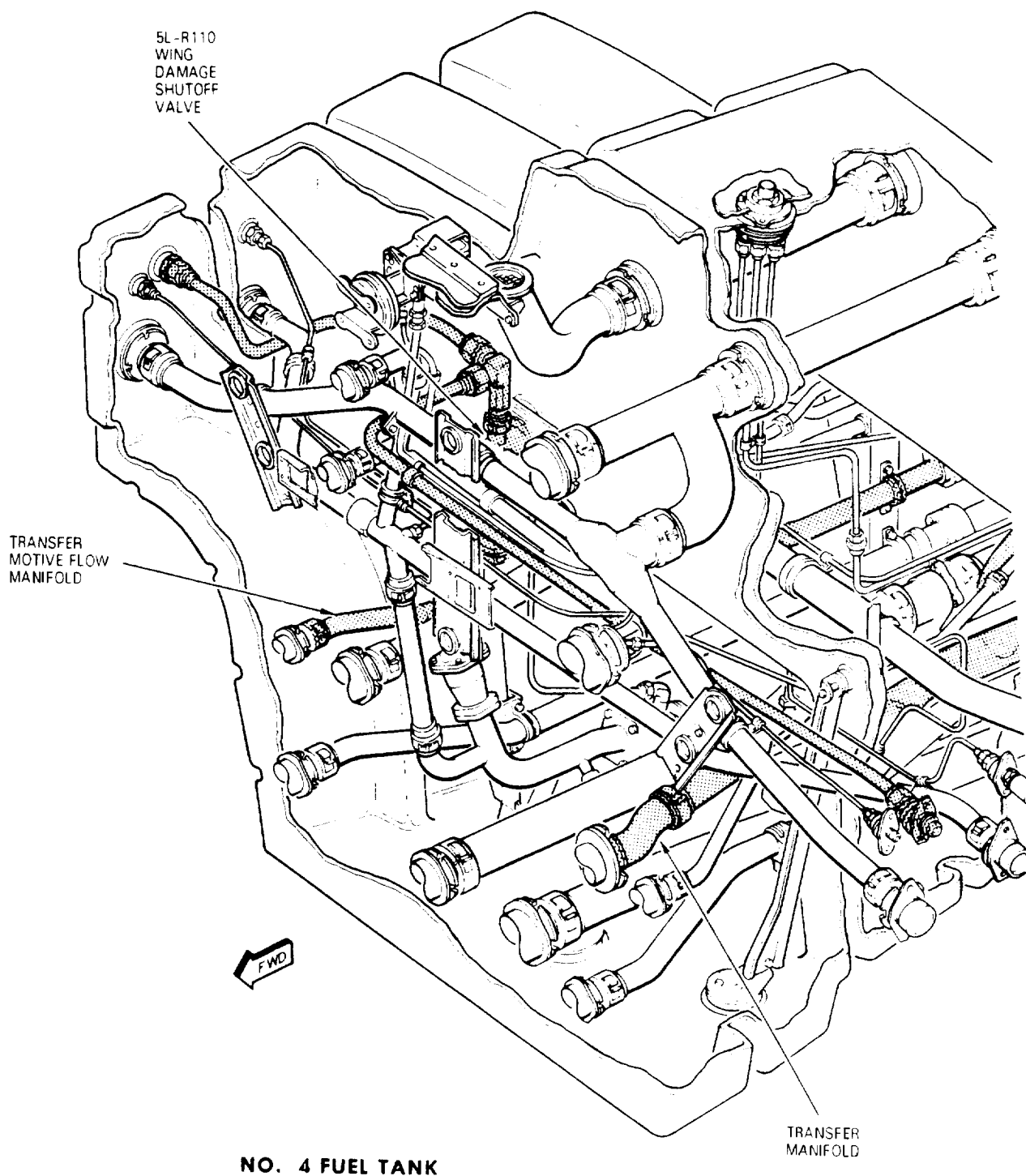
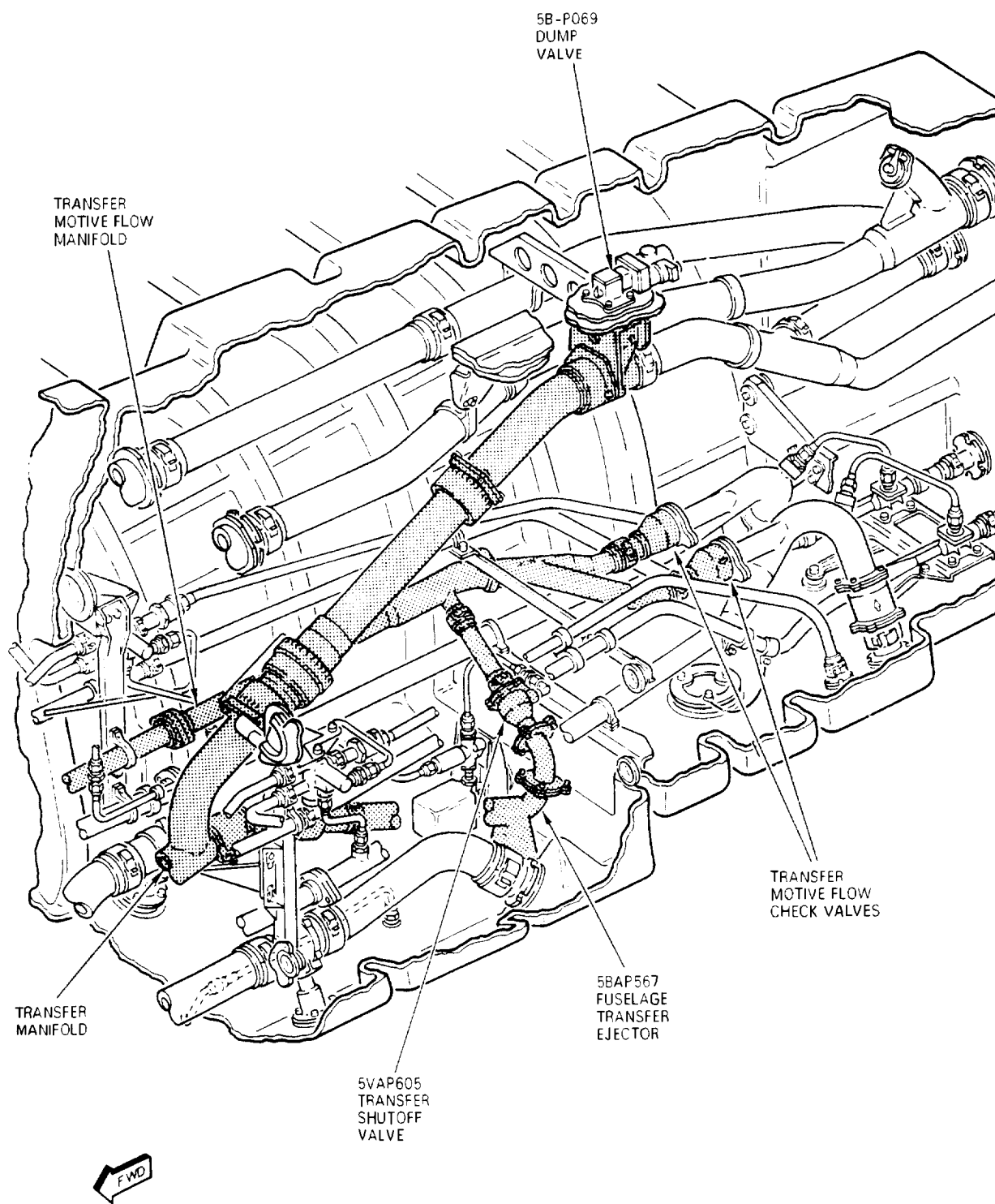


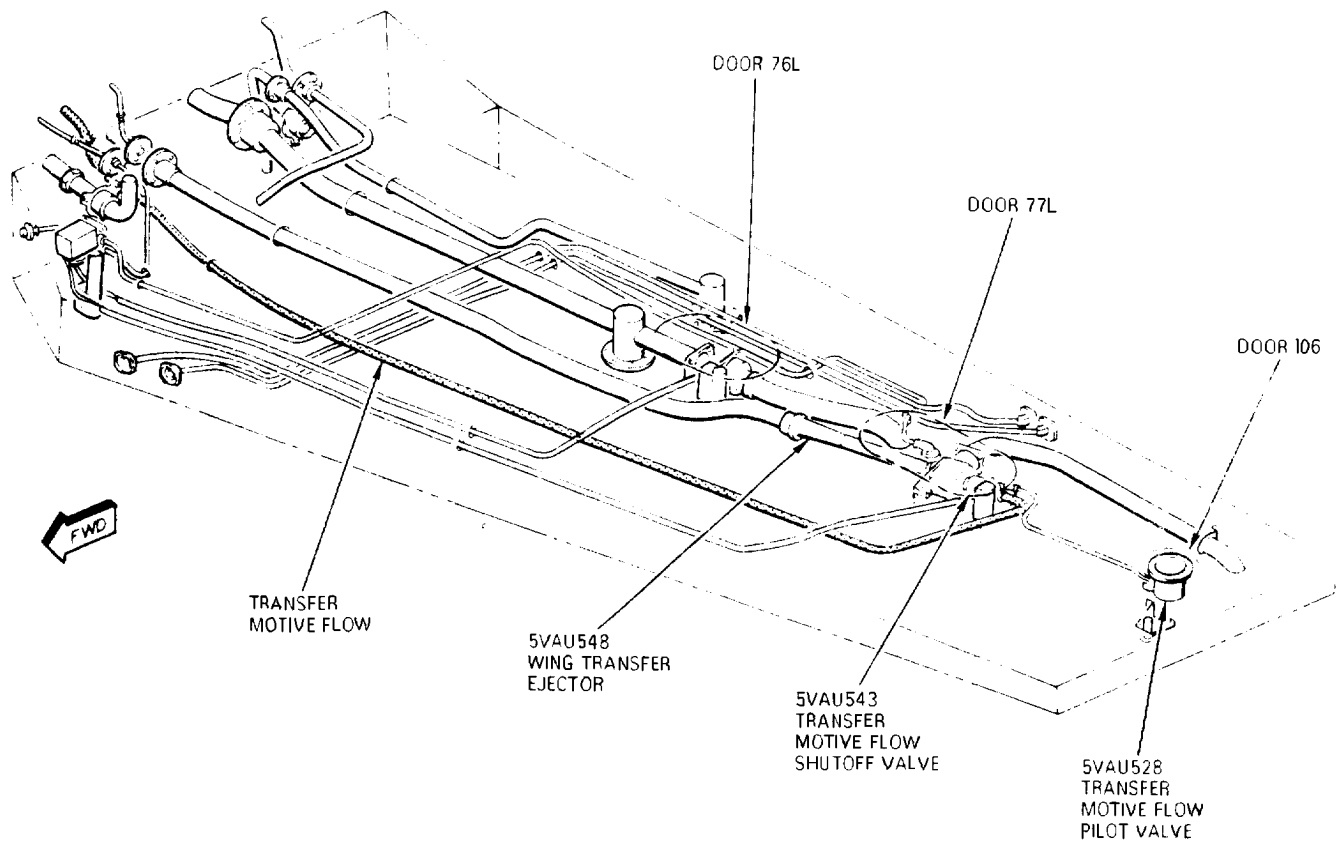
Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 6)



NO. 4 FUEL TANK

01300107

Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 7)



LEFT WING TANK

(LEFT WING TANK SHOWN
RIGHT WING TANK SIMILAR)

Figure 1. Transfer Leak Test Troubleshooting Component Locator (Sheet 8)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE

TESTING AND TROUBLESHOOTING

TROUBLESHOOTING PART II

INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
LEFT and RIGHT Counters Decreasing When S12 NEG G Switch Set to ON, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 053, Table 10	18
No. 1 Fuel Tank Not Transferring, Table 4	8
No. 1 Fuel Tank Transferring When Test Set Switch S13 Is Set to OFF, Table 2	4
No. 1 Tank Pressure Operated Interconnect Valve Did Not Open at Fuel Low - 161924 THRU 162477, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39, Table 11	20
No. 1 Tank Pressure Operated Interconnect Valve Did Not Open at Fuel Low - 162826 AND UP, Table 14	27
No. 4 Fuel Tank Not Transferring, Table 5	9
No. 4 Fuel Tank Transferring When Test Set Switch S14 Is Set to OFF, Table 3	6
Tanks 1 and 4 Not Transferring Until Fuel Low Occurs, Table 12	22
Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring When Fuel Low Occurs, 161520 THRU 161987, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39, Table 13	24
TK 1 V POS Light Not On, Table 7	11
TK 1 V POS, TK 2 V POS and TK 3 V POS Lights Not On When Pressed, Table 1	2
TK 2 V POS Light Not On, Table 8	14
TK 3 V POS Light Not On, Table 9	16
Wing Fuel Quantity Increases When Switch S7 Set to FUS, Table 6	10

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replacement and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Jul 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-55C1)	1 Jul 86	—

Table 1. TK 1 V POS, TK 2 V POS and TK 3 V POS
Lights Not On When Pressed

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring FUEL CHECK PANEL FUEL V POSITION Circuit Breaker No. 8 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

**Table 1. TK 1 V POS, TK 2 V POS and TK 3 V POS
Lights Not On When Pressed (Continued)**

Procedure	No	Yes
a. Make sure FUEL V POSITION circuit breaker on no. 8 circuit breaker/relay panel (door 10L) is closed, then do step b	-	-
b. Turn off electrical power (A1-F18AC-LMM-000). Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00). Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-B019, pin 7?	c	d
c. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C159G pin 87 to 5P-B019 pin 7?	e	f
d. Does a ground exist 5P-B019, pin 6?	e	g
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step h	-	-
f. Isolate between 5CBC023 FUEL V POSITION circuit breaker and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step h	-	-
g. Repair or replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step h	-	-
h. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connector 52P-C159G		
(2) FUEL CHECK PANEL		
(3) Doors 8 and 10L	-	-

Table 2. No. 1 Fuel Tank Transferring When Test Set Switch S13 Is Set to OFF

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 1, WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Fuel System Test Set No. 1 Fuel Tank Transfer Control Valve No. 1 Fuel Tank Transfer Shutoff Valve</p>		
Procedure	No	Yes
<p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <p>1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity.</p> <p>a. Do substeps below:</p> <p>(1) Shut down engine (A1-F18AC-LMM-000).</p> <p>(2) On F/A-18A, remove door 18 (A1-F18-LMM-010). On F/A-18B, internal door CPJ (A1-F18AC-LMM-010).</p> <p>(3) Gain access to 5P-E035.</p>		

**Table 2. No. 1 Fuel Tank Transferring When Test Set
Switch S13 Is Set to OFF (Continued)**

Procedure	No	Yes
(4) Turn off electrical power (A1-F18AC-LMM-000).		
(5) Disconnect 5P-E035 from no. 1 fuel tank.		
(6) Turn on electrical power (A1-F18AC-LMM-000).		
(7) Make sure test box switch S13 is set to OFF.		
(8) Does 28vdc exist at 5P-E035 pin 13?	b	c
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect test set cable from 5J-G024 in nose wheelwell.		
(3) Does continuity exist from 5J-G024 pin 40 to 5P-E035 pin 13?	d	e
c. Does a ground exist at 5P-E035 pin 11 and 5P-E035 pin 12?	d	f
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
e. Replace test set and do step g	-	-
f. Replace no. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01) and no. 1 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP105 00) and do step g	-	-
g. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed or closed:		
(1) Connector 5P-E035		
(2) Doors 18 or CPJ	-	-

Table 3. No. 4 Fuel Tank Transferring When Test Set Switch S14 Is Set to OFF

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Fuel System Test Set No. 4 Fuel Tank Transfer Control Valve No. 4 Fuel Tank Transfer Shutoff Valve</p>		
Procedure	No	Yes
<p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <p>1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity.</p> <p>a. Do substeps below:</p> <p>(1) Shut down engine (A1-F18AC-LMM-000).</p> <p>(2) Remove door 40 (A1-F18AC-LMM-010).</p> <p>(3) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(4) Disconnect 5P-R120.</p>		

**Table 3. No. 4 Fuel Tank Transferring When Test Set
Switch S14 Is Set to OFF (Continued)**

Procedure	No	Yes
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Make sure test box switches S12 and S14 are set to OFF.		
(7) Does 28vdc exist at 5P-R120, pin 4?	b	c
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect test set cable from 5J-G024 in nose wheelwell.		
(3) Does continuity exist from 5J-G024 pin 2 to 5P-R120, pin 4?	d	e
c. Does a ground exist at 5P-R120 pin 2 and 5P-R120 pin 3?	d	f
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
e. Replace test set and do step g	-	-
f. Replace no. 4 fuel tank transfer control valve (A1-F18AC-460-300, WP116 03) and no. 4 fuel tank transfer shutoff valve (A1-F18AC-400-300, WP116 02) and do step g	-	-
g. If disconnected, removed or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-R120		
(2) Door 40	-	-

Table 4. No. 1 Fuel Tank Not Transferring

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 1, WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>No. 1 Fuel Tank Transfer Control Valve No. 1 Fuel Tank Transfer Jet Ejector No. 1 Fuel Tank Transfer Shutoff Valve and Pilot Valve</p>		
Procedure	No	Yes
a. Do substeps below:		
(1) Shut down engine (A1-F18AC-LMM-000).		
(2) Remove no. 1 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00). Is ejector clogged or inlet check valve failed closed?	b	c
b. Reinstall no. 1 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00). Replace no. 1 fuel tank fuel transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP105 00). On 161520 AND UP, replace no. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01)	-	-
c. Replace no. 1 fuel transfer jet ejector (A1-F18AC-460-300, WP105 00)	-	-

Table 5. No. 4 Fuel Tank Not Transferring

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p align="center">For component location, refer to figure 1, WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p align="center">No. 4 Fuel Tank Transfer Control Valve No. 4 Fuel Tank Transfer Jet Ejector No. 4 Fuel Tank Transfer Shutoff Valve and Pilot Valve</p>		
Procedure	No	Yes
a. Do substeps below:		
(1) Shut down engine (A1-F18AC-LMM-000).		
(2) Remove no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00). Is ejector clogged or inlet check valve failed closed?	b	c
b. Reinstall no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP106 00). Replace no. 4 fuel tank fuel transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP116 00). Replace no. 4 fuel tank transfer control valve (A1-F18AC-460-300, WP116 03)	-	-
c. Replace no. 4 fuel transfer jet ejector (A1-F18AC-460-300, WP117 00)	-	-

Table 6. Wing Fuel Quantity Increases When Switch S7 Set to FUS

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Diverter Valve Fuel System Test Set No. 8 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
a. Make sure test box switch S7 is set to FUS, then do substeps below:		
(1) Shut down engine (A1-F18AC-LMM-000).		
(2) Remove door 10L (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 52P-C159F pin 19?	b	c
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect test cable from 5J-R135 (door 46R).		
(3) Does continuity exist from 5J-R135 pin 53 to 52P-C159F pin 19?	d	e
c. Do substeps below:		

Table 6. Wing Fuel Quantity Increases When Switch S7 Set to FUS (Continued)

Procedure	No	Yes
(1) Remove door 40 (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-R120 from no. 4 fuel tank.		
(4) Reconnect 52P-C159F to no. 8 circuit breaker/relay panel assembly.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-R120 pin 10?	f	g
d. Isolate defective aircraft wiring (A1-F18AC()-WDM-000) and do step h	-	-
e. Replace fuel system test set and do step h	-	-
f. Replace diverter valve on side that increases (A1-F18AC-460-300, WP146 00) and do step h	-	-
g. Isolate between the 5K-C052 fuel low level relay no. 2 and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step h	-	-
h. If disconnected removed, or opened during this procedure, make sure the items listed below are connected, installed or closed:		
(1) Connectors 52P-C159F and 5P-R120		
(2) Doors 10L and 40	-	-

Table 7. TK1 V POS Light Not On

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 7. TK1 V POS Light Not On (Continued)

<div>NOTE</div> <div>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</div> <div>For component location, refer to figure 1, WP014 00.</div> <div>Malfunction is caused by one of the items listed below:</div> <div>Aircraft Wiring</div> <div>FUEL CHECK PANEL</div> <div>No. 1 Fuel Tank Pressure Operated Interconnect Valve</div>		
Procedure	No	Yes
<div>CAUTION</div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin test that do not go through switches/relay contacts may use the RX1 scale.</div> <div>NOTE</div> <div>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</div> <div>1. Pin to pin test per procedural step.</div> <div>2. Shorts to ground.</div> <div>3. Shorts between surrounding pins on connectors.</div> <div>4. Shorts between shield and conductors.</div> <div>5. Shield continuity.</div>		
a. Do substeps listed below:		
(1) Shut down engine (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).		
(4) Set TK INTCON V CHK switch to CHK.		
(5) Does continuity exist from 5J-B019 pin 7 to 5J-B019 pin 12?	b	c
b. Repair or replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step i	-	-
c. Do substeps below:		

Table 7. TK1 V POS Light Not On (Continued)

Procedure	No	Yes
(1) On F/A-18A, remove door 18 (A1-F18AC-LMM-010). On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010).		
(2) Gain access to 5P-E035.		
(3) Disconnect 5P-E035 from no. 1 fuel tank.		
(4) Does continuity exist from 5P-B019 pin 12 to 5P-E035 pin 5?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do and do step i	-	-
e. Does a ground exist at 5P-E035 pin 6?	d	f
f. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Does 28vdc exist at 5P-E035 pin 3?	g	h
g. Replace no. 1 fuel tank fuel low level shutoff valve (A1-F18AC-460-300, WP105 02) and no. 1 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP107 02) and do step i	-	-
h. On 161924 THRU 162477, replace 5K-C170 fuel low level relay no. 3 (A1-F18AC-430-300, WP030 00) and do step i. On 162826 AND UP, replace 5K-C163 fuel low level relay no. 1 (A1-F18AC-460-300, WP041 00) and do step i	-	-
i. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed or closed:		
(1) Connector 5P-E035		
(2) FUEL CHECK PANEL		
(3) Door 18 or CPJ	-	-

Table 8. TK 2 V POS Light Not On**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

260-6XLP
(AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.

For component location, refer to figure 1, WP014 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
FUEL CHECK PANEL
No. 2 Fuel Tank Pressure Operated Interconnect Valve

Procedure**No****Yes**

To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.

NOTE

The question used in logic tree “Does continuity exist?” means to test for the items listed below:

1. Pin to pin test per procedural step.
2. Shorts to ground.
3. Shorts between surrounding pins on connectors.
4. Shorts between shield and conductors.
5. Shield continuity.

a. Do substeps below:

- (1) Shut down engines (A1-F18AC-LMM-000).

Table 8. TK 2 V POS Light Not On (Continued)

Procedure	No	Yes
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).		
(4) Set TK INTCON V CHK switch to CHK.		
(5) Does continuity exist from 5J-B019 pin 7 to 5J-B019 pin 8?	b	c
b. Repair or replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g	-	-
c. Do substeps below:		
(1) Remove door 26 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-P137.		
(3) Does continuity exist from 5P-B019 pin 8 to 5P-P137 pin 5?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
e. Does a ground exist at 5P-P137 pin 6?	d	f
f. Replace no. 2 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP110 00) and do step g	-	-
g. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connector 5P-P137		
(2) FUEL CHECK PANEL		
(3) Door 26	-	-

Table 9. TK 3 V POS Light Not On

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), and Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Piping FUEL CHECK PANEL No. 3 Fuel Tank Pressure Operated Interconnect Valve		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 9. TK 3 V POS Light Not On (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Shut down engines (A1-F18AC-LMM-000).		
(2) Remove FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00).		
(3) Set TK INTCON V CHK switch to CHK.		
(4) Does continuity exist from 5J-B019 pin 7 to 5J-B019 pin 9?	b	c
b. Repair or replace FUEL CHECK PANEL (A1-F18AC-460-300, WP046 00) and do step g	-	-
c. Do substeps below:		
(1) Remove door 31 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-P136.		
(3) Does continuity exist from 5P-B019 pin 9 to 5P-P136 pin 5?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
e. Does a ground exist at 5P-P136 pin 6?	d	f
f. Replace no. 3 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP114 00) and do step g	-	-
g. If disconnected, removed or opened during this procedure, make sure the items listed below are connected, installed or closed:		
(1) Connector 5P-P136		
(2) FUEL CHECK PANEL		
(3) Door 31	-	-

Table 10. LEFT and RIGHT Counters Decreasing When S12 NEG G Switch set to ON, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 053

<p>Support Equipment Required</p> <p>None</p> <p>Materials Required</p> <p>None</p> <p>NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.</p> <p>For component location, refer to figure 1, WP014 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Fuel System Test Set No. 7 Circuit Breaker/Relay Panel Assembly</p>		
Procedure	No	Yes
<p>CAUTION</p> <p>To prevent damages to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <p>1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Short between shield and conductors. 5. Shield continuity.</p> <p>a. Do substeps below:</p> <p>(1) Shut down engines (A1-F18AC-LMM-000).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect test set cable from 5J-G024 in nose wheelwell.</p>		

Table 10. LEFT and RIGHT Counters Decreasing When S12 NEG G Switch set to ON, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 053 (Continued)

Procedure	No	Yes
(4) Make sure test box switch S12 is set to ON.		
(5) Does a ground exist at pin 39 on test set cable?	b	c
b. Replace test set and do step f	-	-
c. Do substeps below:		
(1) Open doors 10L and 13R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 70P-F001B from Air Data Computer CP-1334/A.		
(4) Disconnect 52P-C057C and 52P-C057D from the no. 7 circuit breaker/relay panel assembly.		
(5) Does continuity exist from:		
52P-C057C pin E to 5J-G024 pin 3		
52P-C057C pin D to 5J-G024 pin 2		
52P-C057D pin 36 to 5J-G024 pin 39		
52P-C057D pin 36 to 70P-F001B pin 59		
5P-G024 pin 3 to 5P-G024 pin 40?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
e. Isolate between 5CBC157 circuit breaker 5K-C161 negative g relay and 5K-C163 fuel low level relay no. 1 and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 52P-C057C, 52P-C057D, 70P-F001B		
(2) Doors 10L and 13R	-	-

Table 11. No. 1 Tank Pressure Operated Interconnect Valve Did Not Open at Fuel Low - 161924 THRU 162477, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring No. 1 Fuel Tank Pressure Operated Interconnect Valve No. 8 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 11. No. 1 Tank Pressure Operated Interconnect Valve Did Not Open at Fuel Low - 161924 THRU 162477, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39 (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Gain access to 5P-E035. On F/A-18A, remove door 18 (A1-F18AC-LMM-010). On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-E035.		
(4) Make sure test box switch S7 is set to FUS.		
(5) Does 28vdc exist at 5P-E035 pin 3?	b	c
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C159F pin 51 to 5P-E035 pin 3?	d	e
c. Does a ground exist at 5P-E035 pin 4 and 5P-E035 pin 7?	d	f
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
e. Isolate between 5K-C170 fuel low level relay no. 3 and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step g	-	-
f. Replace no. 1 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP107 02) and do step g	-	-
g. If disconnected, removed or opened, during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 5P-E035 and 52P-C159F		
(2) Doors 18, CPJ, or 10L	-	-

Table 12. Tanks 1 and 4 Not Transferring Until Fuel Low Occurs

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Air Data Computer CP-1334/A No. 7 Circuit Breaker/Relay Panel Assembly 5K-C161 Negative G Relay		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 12. Tanks 1 and 4 Not Transferring Until Fuel Low Occurs (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Open door 13R (A1-F18AC-LMM-010).		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 70P-F001B from Air Data Computer CP-1334/A (door 13R).		
(4) Does a ground exist at J2, pin 59 on Air Data Computer CP-1334/A?	b	c
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly (door 10L).		
(3) Disconnect 5P-G024 from fuel quantity test receptacle (nose wheelwell, left side).		
(4) Does continuity exist from:		
52P-C057D pin 36 to 5J-G024 pin 39		
52P-C057D pin 36 to 70P-F001B pin 59?	d	e
c. Replace Air Data Computer CP-1334/A (A1-F18AC-560-300, WP003 00) and do step f	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000 and do step f	-	-
e. Isolate between 5K-C161 negative G relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step f	-	-
f. If disconnected, removed or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 52P-C057D and 70P-F001B.		
(2) Doors 10L and 13R	-	-

**Table 13. Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring
When Fuel Low Occurs, 161520 THRU 161987, ALSO 161353
THRU 161519 AFTER F/A-18 AFC 39**

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE


Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test.

For component location, refer to figure 1, WP014 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Air Data Computer CP-1334/A
Fuel Quantity Gaging Intermediate Device
No. 7 Circuit Breaker/Relay Panel Assembly
5K-C158 Tank 1 Transfer Control Relay
5K-C159 Tank 1 Transfer Time Delay Relay

**Table 13. Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring
When Fuel Low Occurs, 161520 THRU 161987, ALSO 161353
THRU 161519 AFTER F/A-18 AFC 39 (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contact may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity gaging intermediate device (door 14R).		
(4) Does a ground exist at J2, pin 36 on fuel quantity gaging intermediate device?	b	c
b. On 161520 THRU 161761, do substeps below. On 161924 THRU 161987, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39, go to step d.		
(1) Open door 13R (A1-F18AC-LMM-010).		
(2) Disconnect 70P-F001B from Air Data Computer CP-1334/A door 13R.		
(3) Does a ground exist at J2, pin 59 on Air Data Computer CP-1334/A?	d	e
c. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step j	-	-
d. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly (door 10L).		

**Table 13. Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring
When Fuel Low Occurs, 161520 THRU 161987, ALSO 161353
THRU 161519 AFTER F/A-18 AFC 39 (Continued)**

Procedure	No	Yes
(3) Turn on external electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52J-C057D, pin 37?	f	g
e. Replace Air Data Computer CP-1334/A (A1-F18AC-560-300, WP003 00) and do step j	-	-
f. Do step j, then do no. 1 fuel tank transfer test (WP012 03)	-	-
g. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C067C from no. 7 circuit breaker/relay panel assembly (door 10L).		
(3) Does continuity exist from:		
On 161924 THRU 161987, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39 52P-C057C pin W to 5P-F014B pin 36	h	i
On 161520 THRU 161761, 52P-C057C pin W to 70P-F001B pin 59	h	i
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j	-	-
i. Isolate between 5K-C158 tank 1 transfer control relay, 5K-C159 tank 1 transfer time delay relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step j	-	-
j. If disconnected, removed or opened during this procedure make sure the items listed below are connected, installed, or closed:		
(1) Connectors 5P-F014B, 52P-C057C, 52P-C057D and 70P-F001B.		
(2) Doors 10L, 13R and 14R	-	-

Table 14. No. 1 Tank Pressure Operated Interconnect Valve Did Not Open at Fuel Low - 162826 AND UP


Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation 260-6XLP (AN/USM-311)	Nomenclature Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00), may be used while doing this test. For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring No. 1 Fuel Tank Pressure Operated Interconnect Valve No. 9 Relay Panel Assembly		
Procedure	No	Yes
<div style="text-align: center; margin-bottom: 20px;">  </div> <p style="text-align: center;">To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p style="text-align: center; margin-top: 20px;">NOTE</p> <p style="text-align: center;">The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		

Table 14. No. 1 Tank Pressure Operated Interconnect Valve Did Not Open at Fuel Low - 162826 AND UP (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Gain access to 5P-E035. On F/A-18A, remove door 18 (A1-F18AC-LMM-010). On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-E035.		
(4) Make sure test box switch S7 is set to FUS.		
(5) Does 28vdc exist at 5P-E035 pin 3?	b	c
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C161 from no. 9 relay panel assembly.		
(4) Does continuity exist from 52P-C161 pin 19 to 5P-E035 pin 3?	d	e
c. Does a ground exist at 5P-E035 pin 4 and 5P-E035 pin 7?	d	f
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
e. Isolate between 5K-C163 fuel low level relay no. 1 and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step g	-	-
f. Replace no. 1 fuel tank pressure operated interconnect valve (A1-F18AC-460-300, WP107 02) and do step g	-	-
g. If disconnected, removed or opened, during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 5P-E035 and 52P-C161		
(2) Doors 18, CPJ, or 10L	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING PART III
INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000
Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
LEFT and RIGHT Counters Decreasing When S12 NEG G Switch Set To ON - 162394 AND UP, Table 1	1
Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring When Fuel Low Occurs, 162394 AND UP, Table 2	3
Wrong Test Set Indications, Table 3	6

Record of Applicable Technical Directives

None

**Table 1. LEFT and RIGHT Counters Decreasing When S12 NEG G
Switch Set To ON - 162394 AND UP**

Support Equipment Required
None
Materials Required
None
NOTE
Internal Fuel Transfer System Schematic - 162394 AND UP (A1-F18AC-460-500, WP007 07), may be used while doing this test.
For component location, refer to figure 1, WP014 00.
Malfunction is caused by one of the items listed below:
Aircraft Wiring
Fuel System Test Set
No. 7 Circuit Breaker/Relay Panel Assembly
No. 9 Relay Panel Assembly

Table 1. LEFT and RIGHT Counters Decreasing When S12 NEG G Switch Set To ON - 162394 AND UP (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Shut down engines (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect test set cable from 5J-G024 in nose wheelwell.		
(4) Make sure test box switch S12 is set to ON.		
(5) Does a ground exist at pin 39 on test set cable?	b	c
b. Replace test set and do step h	-	-
c. Do substeps below:		
(1) Open doors 10L and 13R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 70P-F001B from Air Data Computer CP-1334/A.		
(4) Disconnect 52P-C057C, 52P-C057D and 52P-C057E from the no. 7 circuit breaker/relay panel assembly (door 10L).		
(5) Disconnect 52P-C161 from no. 9 relay panel assembly (door 10L).		
(6) Does continuity exist from:		
52P-C057C pin E to 5J-G024 pin 3		
52P-C057C pin D to 5J-G024 pin 2		
52P-C057D pin 36 to 5J-G024 pin 39		
52P-C057D pin 36 to 70P-F001B pin 59		
52P-C057E pin 51 to 52P-C161 pin 31		
5P-G024 pin 3 to 5P-G024 pin 40?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step h	-	-
e. On no. 9 relay panel assembly, does continuity exist from 52J-C161 pin 34 to 52J-C161 pin 31?	f	g
f. Isolate between 5K-C163 fuel low level relay no. 1 and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step h	-	-
g. Isolate between 5K-C161 negative G relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step h	-	-

Table 1. LEFT and RIGHT Counters Decreasing When S12 NEG G Switch Set To ON - 162394 AND UP (Continued)

Procedure	No	Yes
h. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 52P-C057C, 52P-C057D, 52P-C057E, 52P-C161, and 70P-F001B.		
(2) Doors 10L and 13R	-	-

Table 2. Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring When Fuel Low Occurs, 162394 AND UP

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 07) may be used while doing this test.	
For component location, refer to figure 1, WP014 00 and figure 1, WP024 01.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring Fuel Quantity Gaging Intermediate Device No. 7 Relay/Circuit Breaker Panel Assembly No. 9 Relay Panel Assembly 5K-C158 Tank 1 Transfer Control Relay 5K-C159 Tank 1 Transfer Time Delay Relay	

Table 2. Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring When Fuel Low Occurs, 162394 AND UP (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity gaging intermediate device (door 14R).		
(4) Does a ground exist at J2, pin 36 on fuel quantity gaging intermediate device?	b	c
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-C057F from no. 7 circuit breaker/relay panel assembly (door 10L).		
(3) Does continuity exist 52P-C057F pin 85 to 5P-F014B pin 36?	d	e
c. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step j	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j	-	-
e. Do substeps below:		
(1) Disconnect 52P-C057D from no. 7 circuit breaker/relay panel assembly.		
(2) Turn on electrical power (A1-F18AC-LMM-000).		

Table 2. Tank 4 Empty, Tank 1 More Than 1400 lbs, Tank 1 Starts Transferring When Fuel Low Occurs, 162394 AND UP (Continued)

Procedure	No	Yes
(3) Does 28vdc exist at 52J-C057D pin 100?	f	g
f. Isolate between 5K-C158 tank 1 transfer control relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step j	-	-
g. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C161 from no. 9 relay panel assembly (door 10L).		
(3) Does continuity exist from 52J-C161 pin 34 to 52J-C161 pin 30?	h	i
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-C057D pin 100 to 52P-C161 pin 32 and do step j	-	-
i. Isolate between 5K-C159 tank 1 transfer time delay relay and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step j	-	-
j. If disconnected, removed or opened during this procedure make sure the items listed below are connected, installed, or closed:		
(1) Connectors 5P-F014B, 52P-C057D, 52P-C057F and 52P-C161.		
(2) Doors 10L and 14R	-	-

Table 3. Wrong Test Set Indications

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
—	External Air Source (20 to 40 psi)	
Materials Required		
Specification or Part Number	Nomenclature	
TT-I-735, Grade A (FSCM 81348)	Isopropyl Alcohol	
CCCC440TY1CL1 (FSCM 81348)	Cheesecloth	
Malfunction is caused by one of the items listed below:		
Test Set Test Set Receptacle Contamination		
Procedure	No	Yes
NOTE		
Fuel system test set receptacles J1 and J2 are subject to by foreign particles which could cause shorting of pins.		
a. Clean receptacles J1 and J2 per substeps below:		
<div>WARNING</div>		
Isopropyl alcohol is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.		
(1) Clean receptacles with cheesecloth moistened with isopropyl alcohol.		
<div>WARNING</div>		
To prevent injury to personnel, do not direct compressed air against skin.		
(2) Blow loose foreign particles from receptacles using dry, filtered, low pressure (20 to 40 psi) air.		
(3) If test set malfunction still exists, replace test set	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
INTERNAL FUEL TRANSFER AND ENGINE FUEL SUPPLY SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Engine Fuel Supply System Component Locator, Figure 2	24
Internal Fuel Transfer System Component Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 053	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 July 86	—

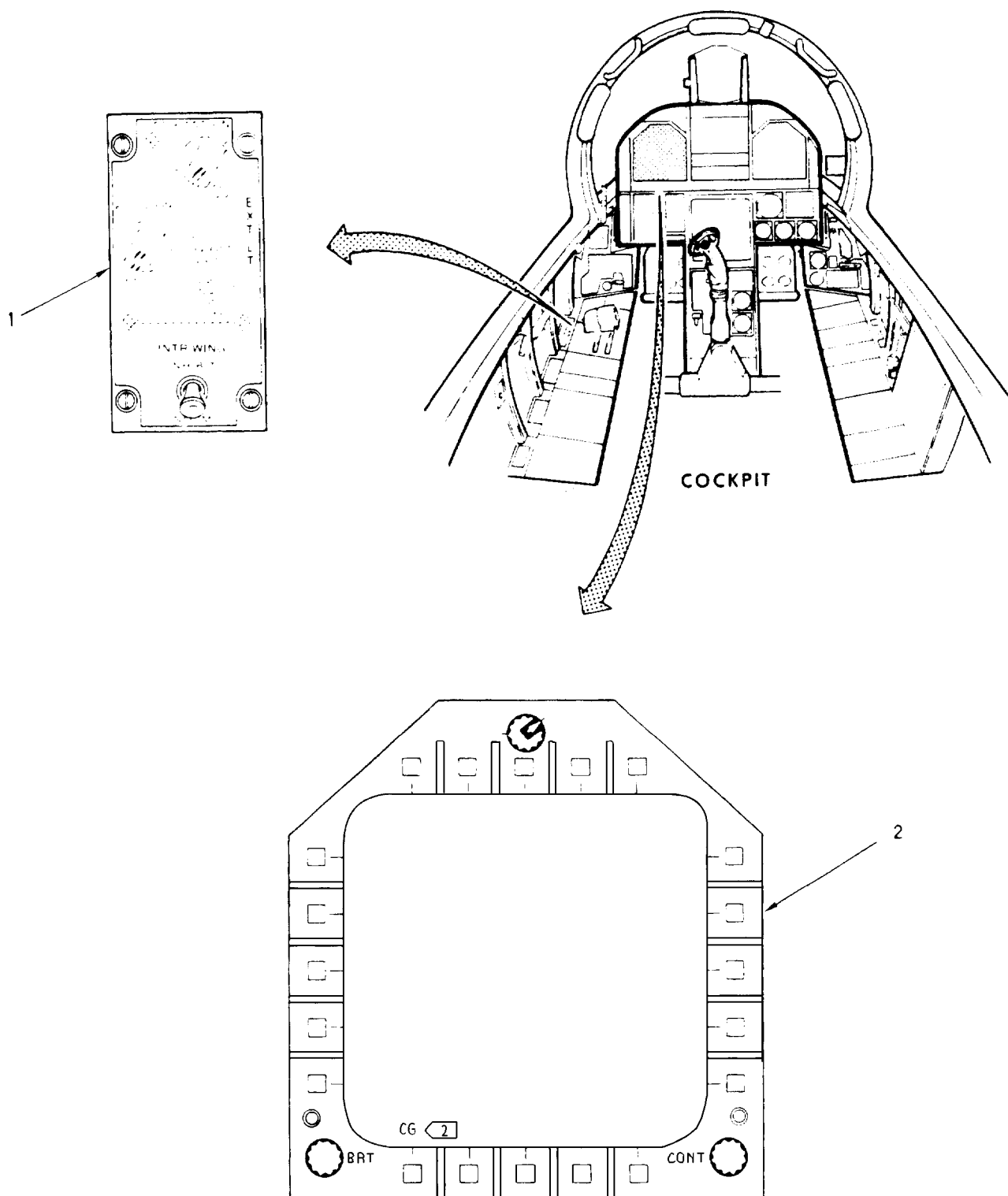


Figure 1. Internal Fuel Transfer System Component Locator (Sheet 1 of 22)

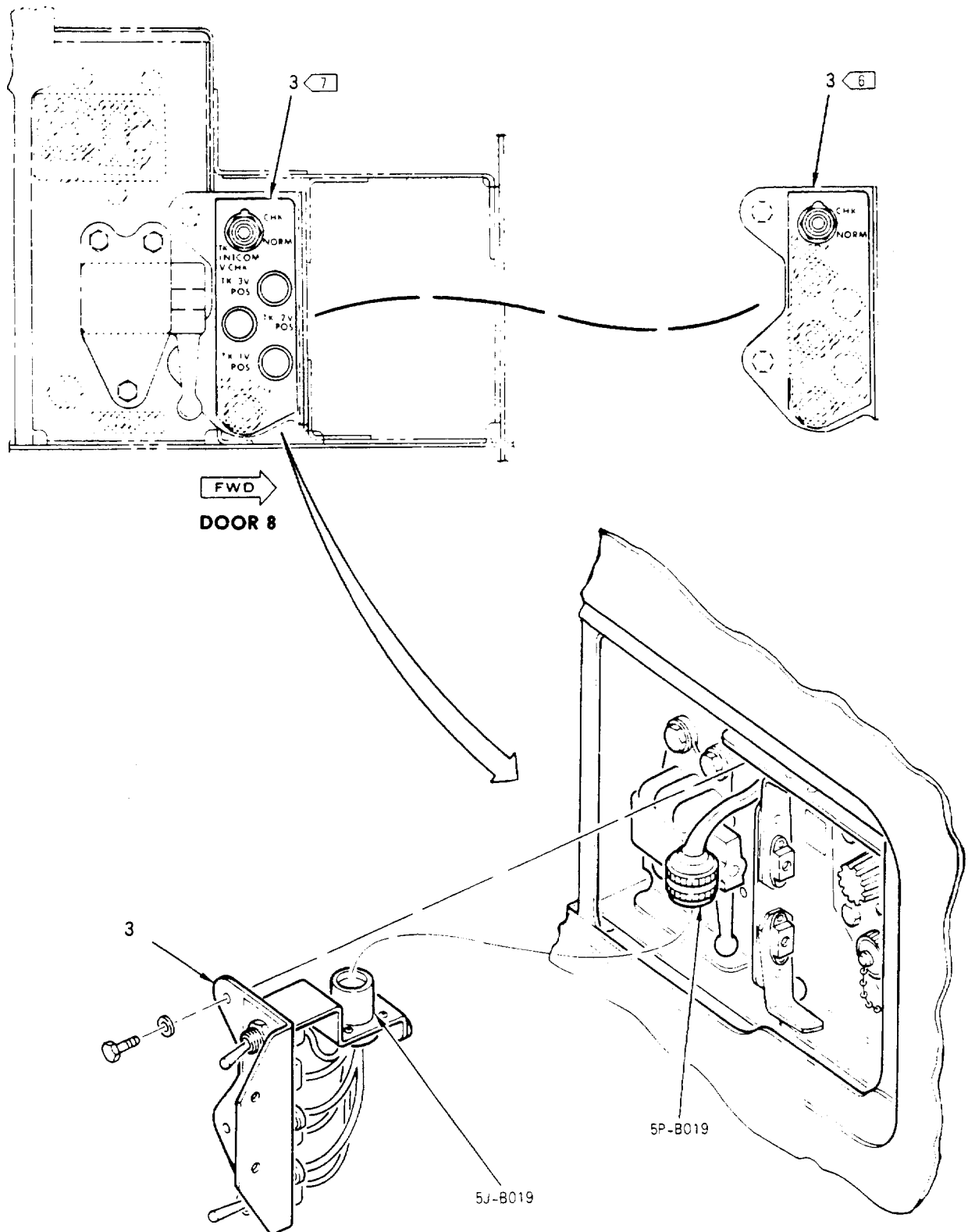
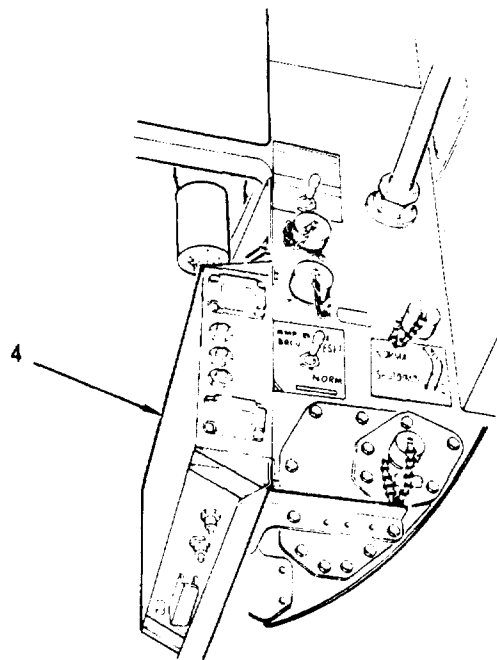
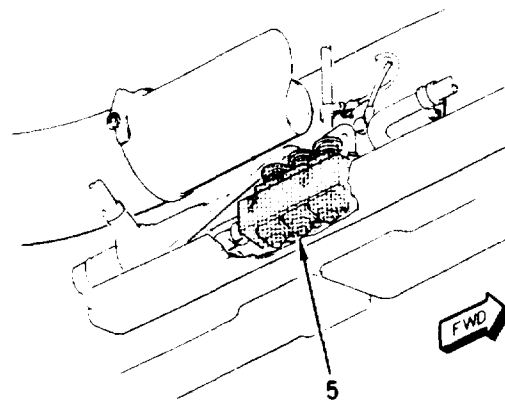


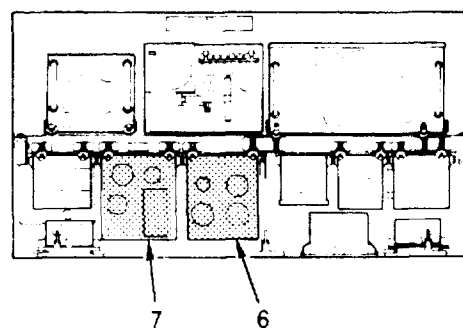
Figure 1. Internal Fuel Transfer System Component Locator (Sheet 2)



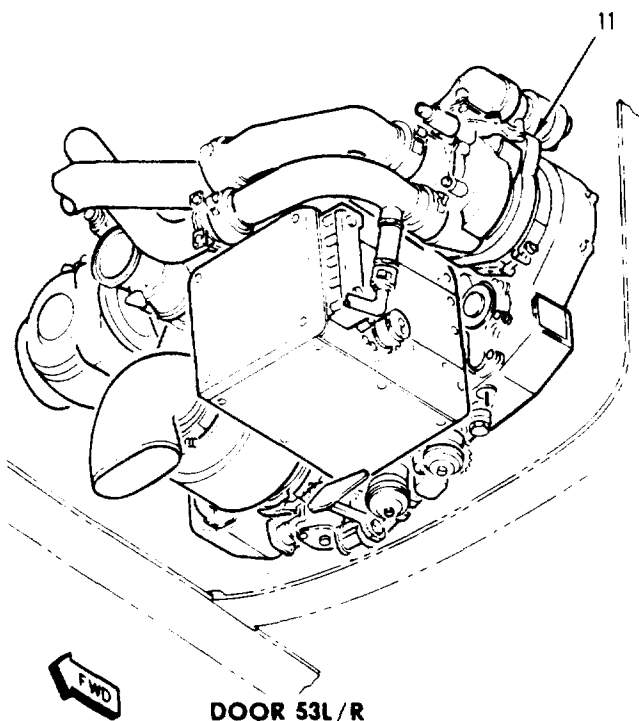
NOSE WHEELWELL, LEFT SIDE
LOOKING AFT AND OUTB'D



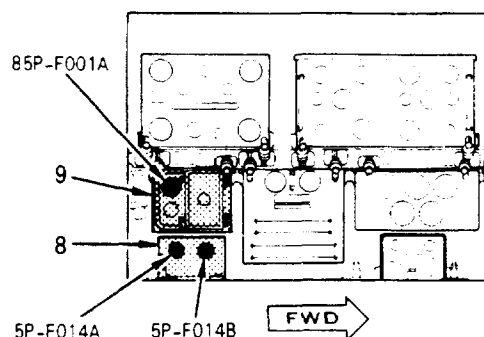
NOSE WHEELWELL



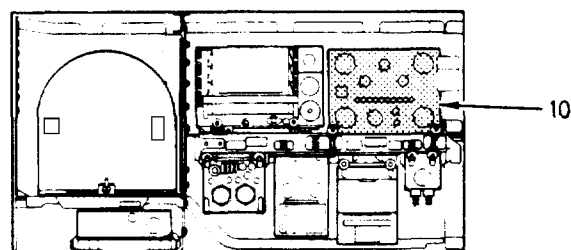
DOOR 13R



DOOR 53L/R
(LEFT SIDE SHOWN,
RIGHT SIDE SIMILAR)



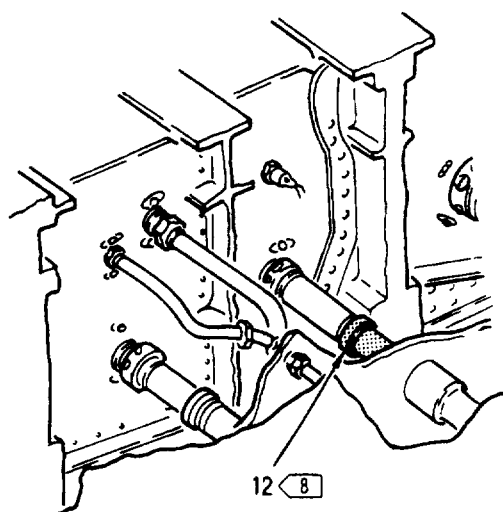
DOOR 14R



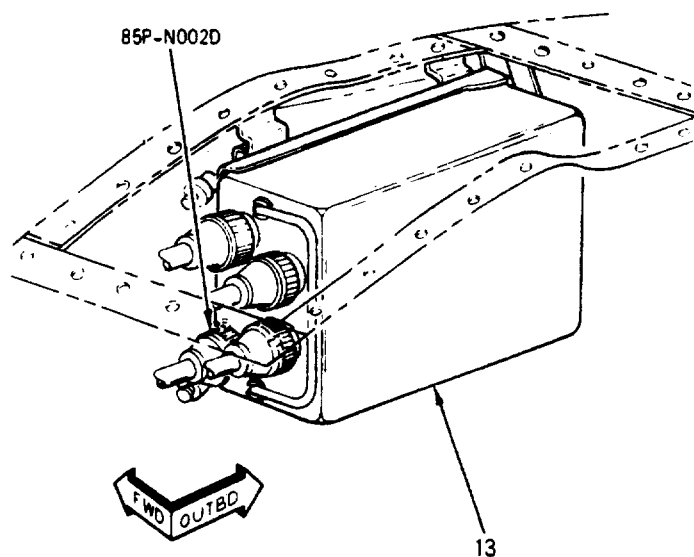
DOOR 13L

01400103

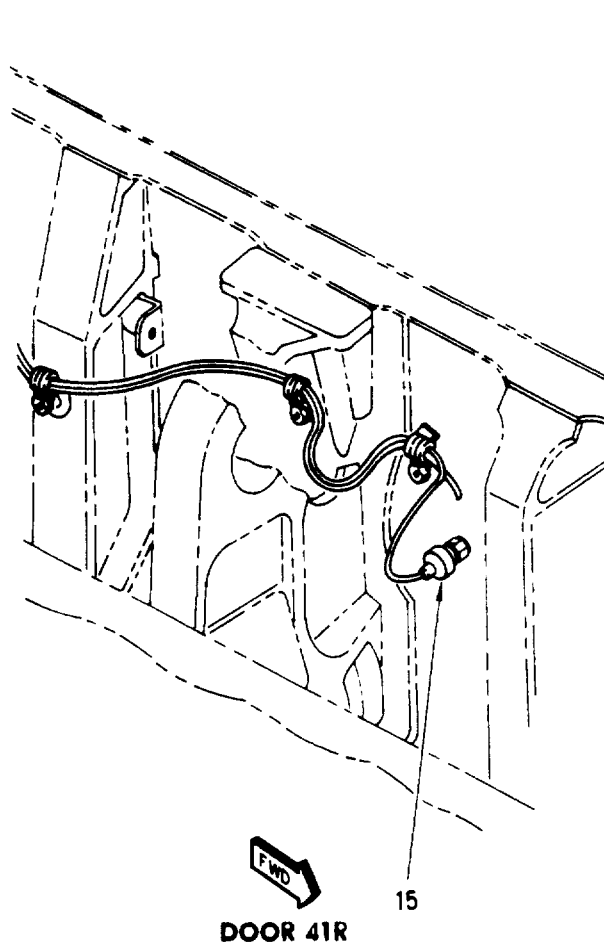
Figure 1. Internal Fuel Transfer System Component Locator (Sheet 3)



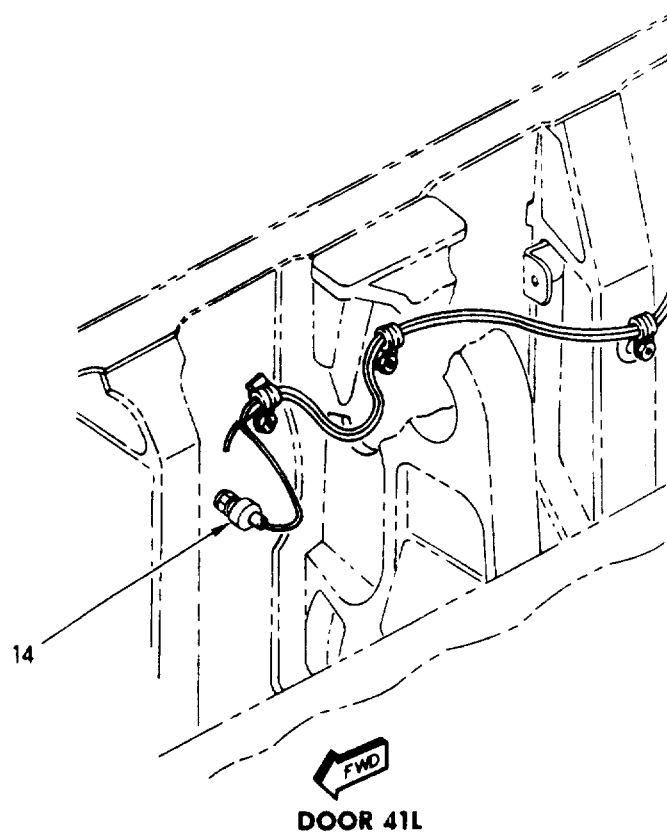
DOOR 41L/R
(LEFT SIDE SHOWN,
RIGHT SIDE SAME)



DOOR 32R

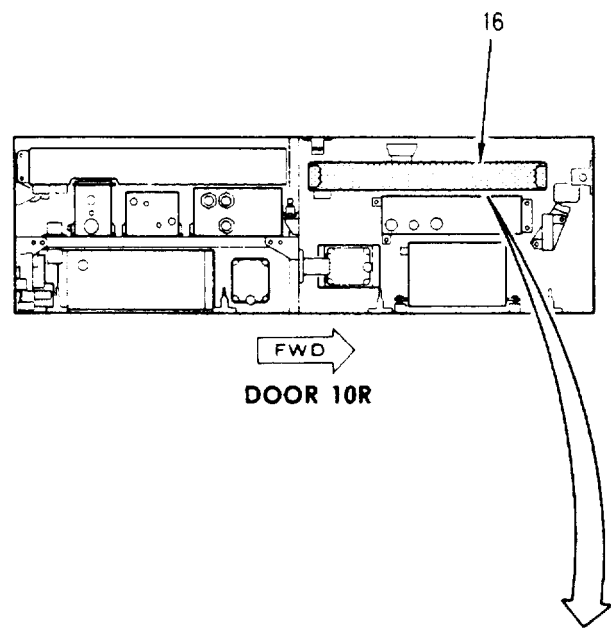


DOOR 41R



DOOR 41L

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 4)



52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
B19	5CBD044	FUEL QUAN IND	R115VAC ϕ B

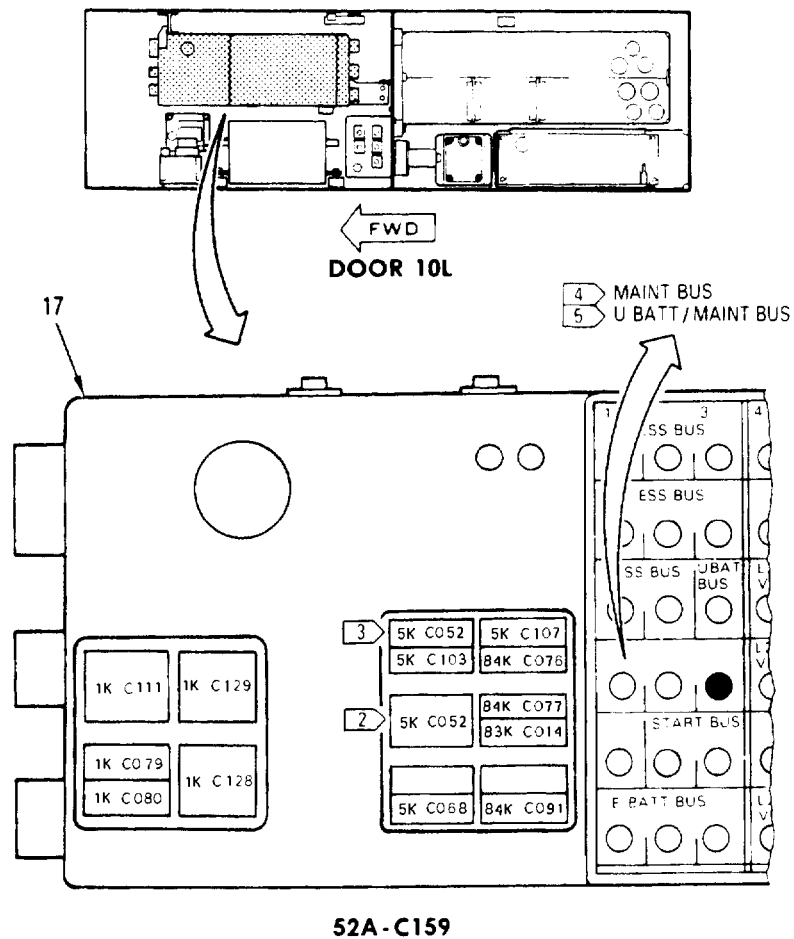
52A-D024 161360 AND UP



52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
B13	5CBD044	FUEL QUAN IND	R115VAC ϕ B

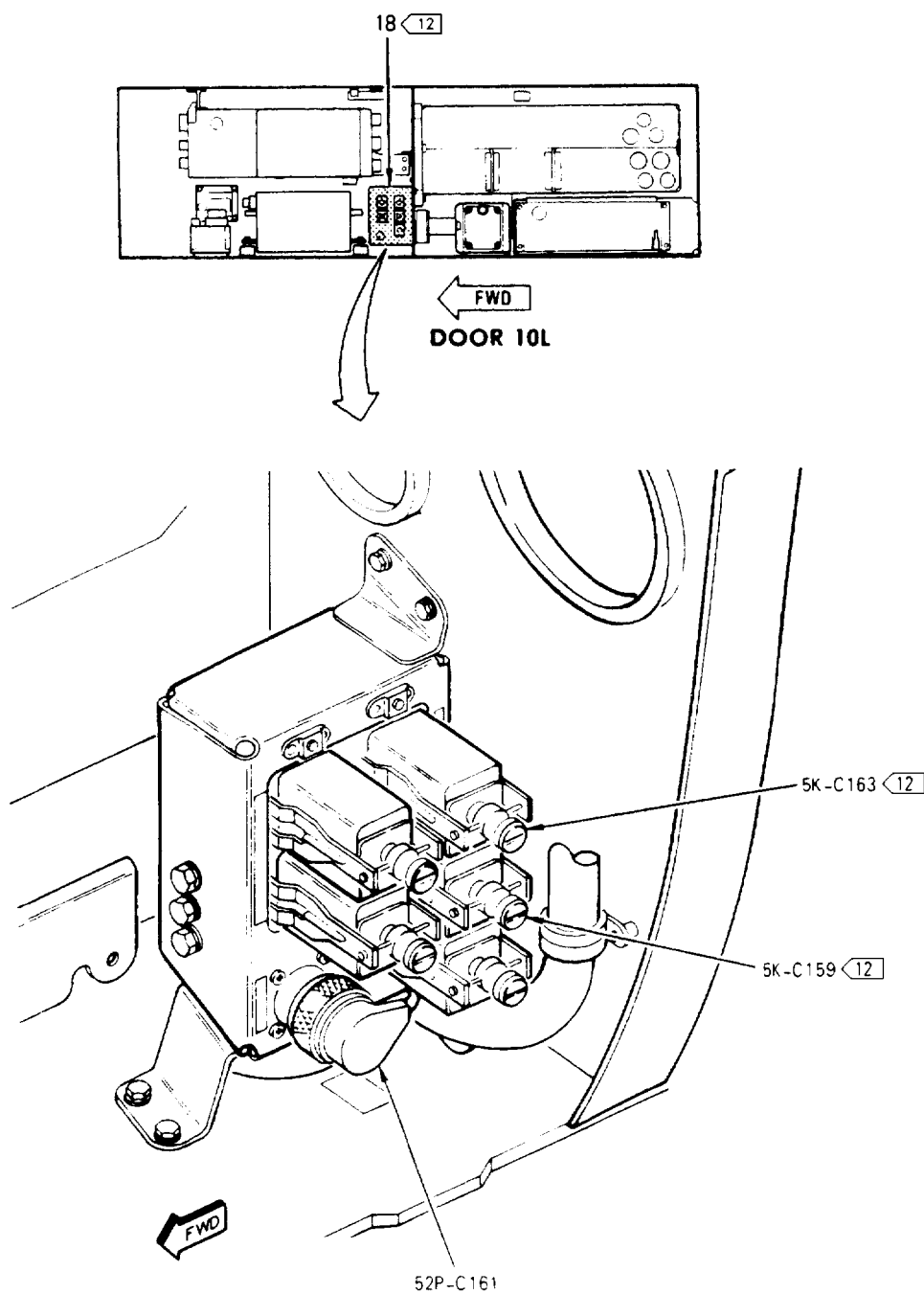
52A-D024 161353 THRU 161359

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 5)



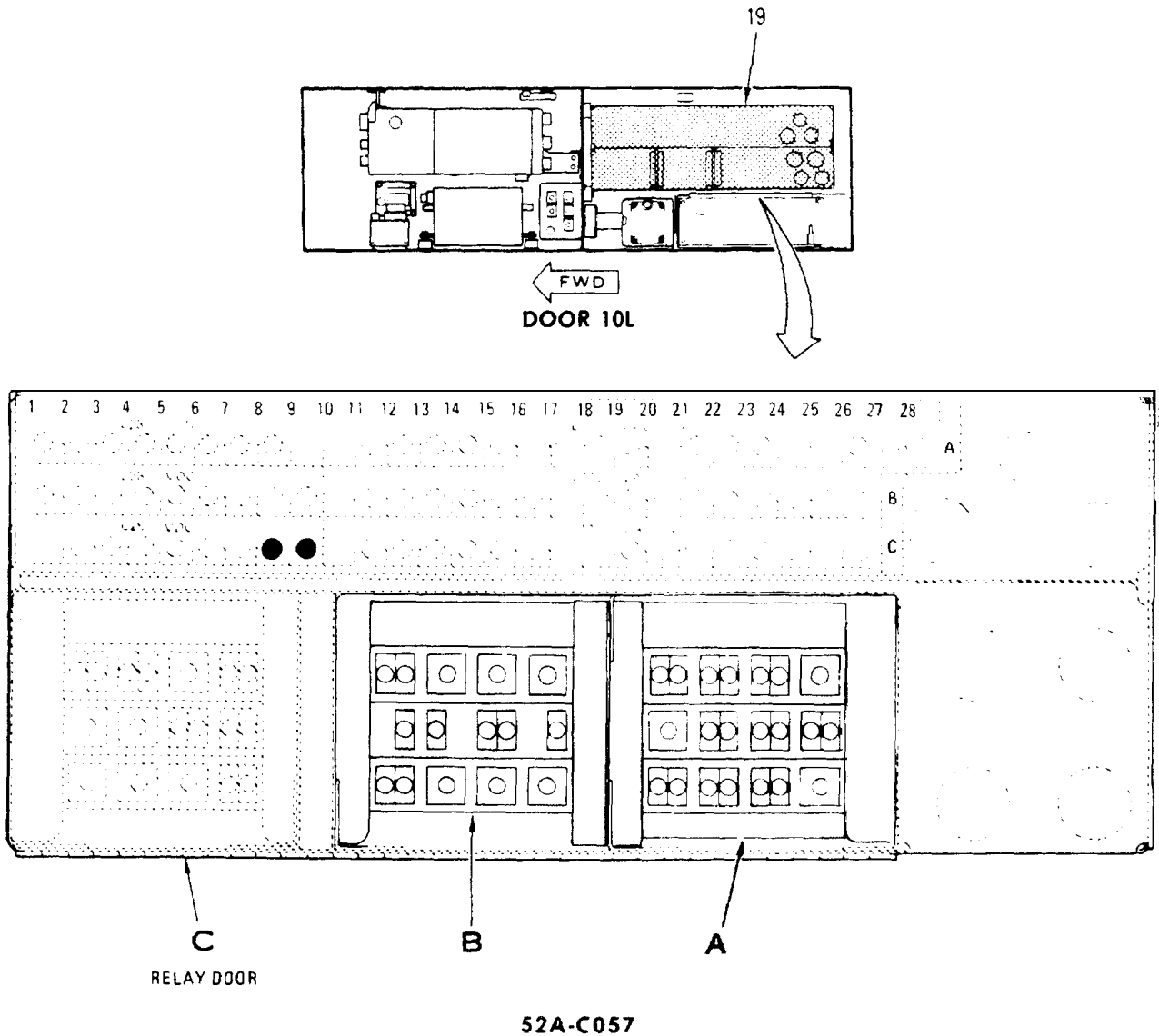
52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A7	5CBC115	WING FUEL	L 28VDC
D3	5CBC023	FUEL V POSITION	4 MAINT 24/28VDC
	5K-C052	FUEL LOW LEVEL RELAY NO. 2	5 U BATT MAINT 24/28VDC

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 6)



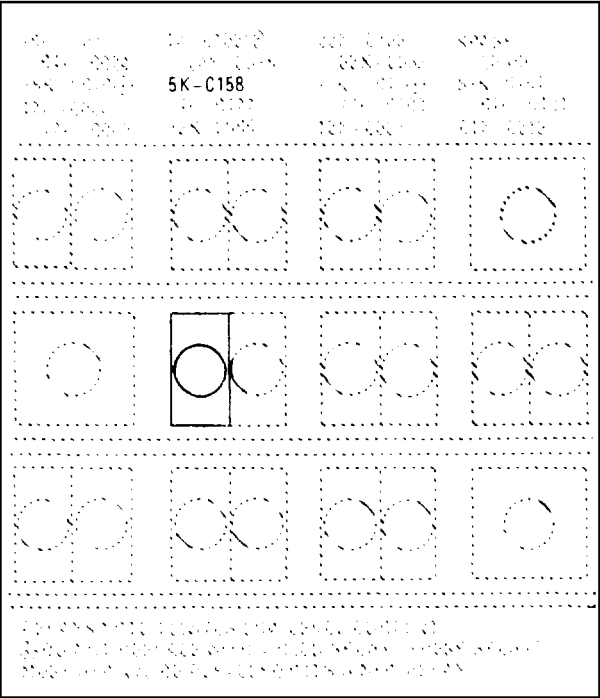
52A-C161 12 NO. 9 RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
	12 5K-C159	TANK 1 TRANSFER TIME DELAY RELAY	
	12 5K-C163	FUEL LOW LEVEL RELAY NO. 1	

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 7)

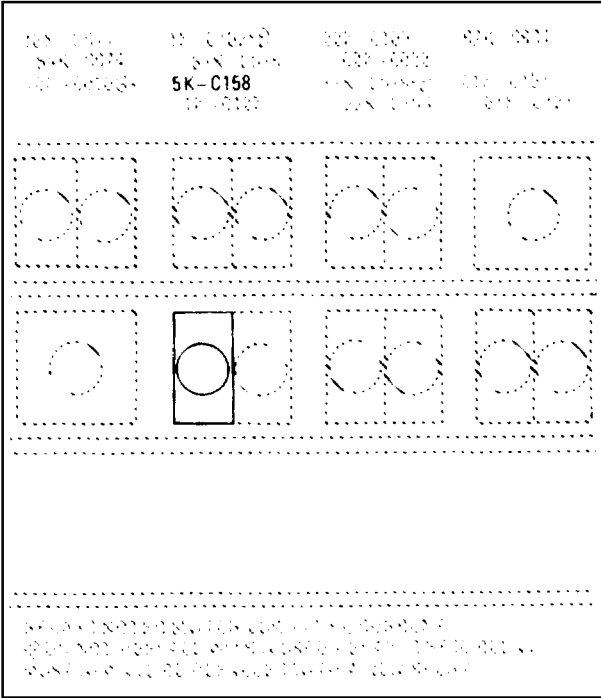


52A-C057		NO. 7 CIRCUIT BREAKER/ RELAY PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS	
6	C9	5CBC157	TANK 1 TRANSFER	L28VDC
7	C9	5CBC157	FUEL TRANSFER	L28VDC
7	C8	5CBC162	FUEL TEST	L28VDC
2		5K-C158	TANK 1 TRANSFER CONTROL RELAY	
11		5K-C159	TANK 1 TRANSFER TIME DELAY RELAY	
13		5K-C161	NEGATIVE G RELAY	
10		5K-C163	FUEL LOW LEVEL RELAY NO. 1	

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 8)

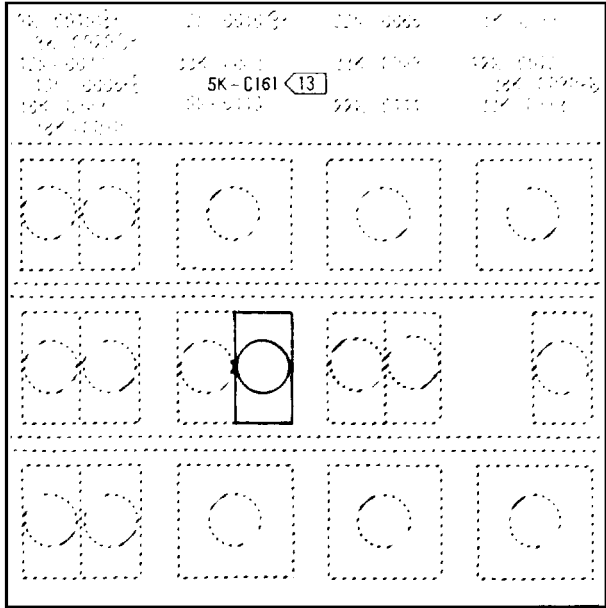


F/A-18B

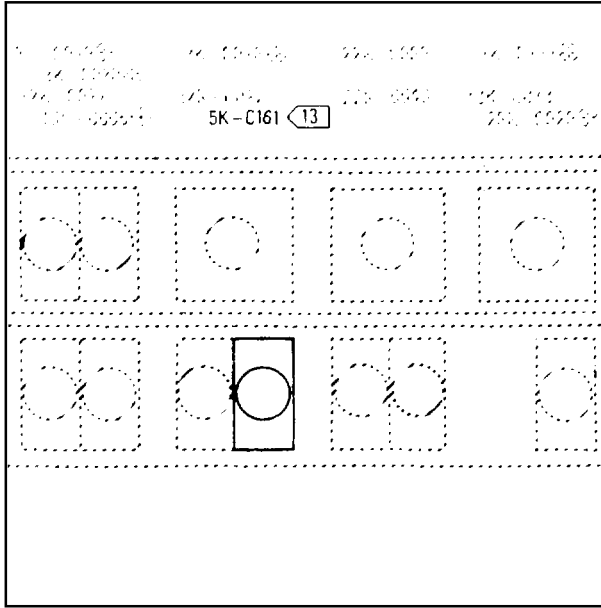


F/A-18A

A



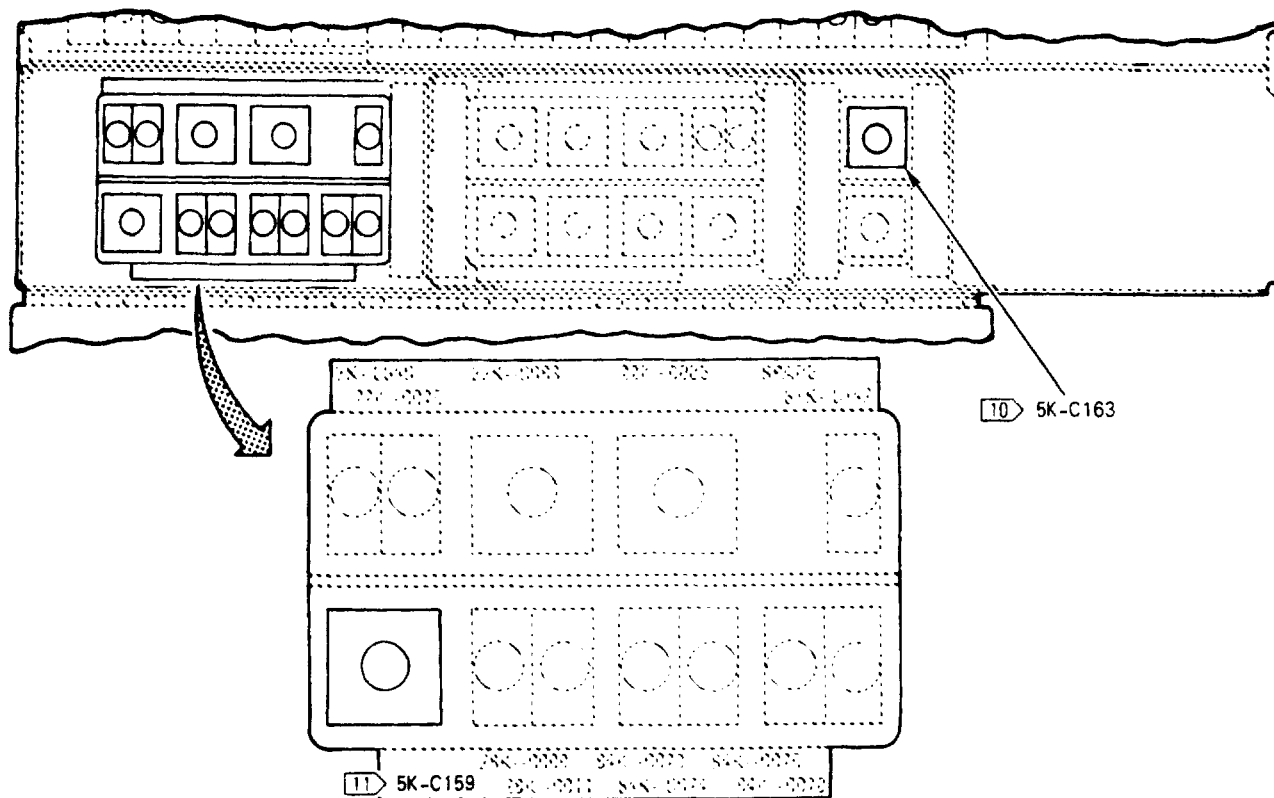
F/A-18B



F/A-18A

B

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 9)



VIEW WITH RELAY DOOR OPEN

C

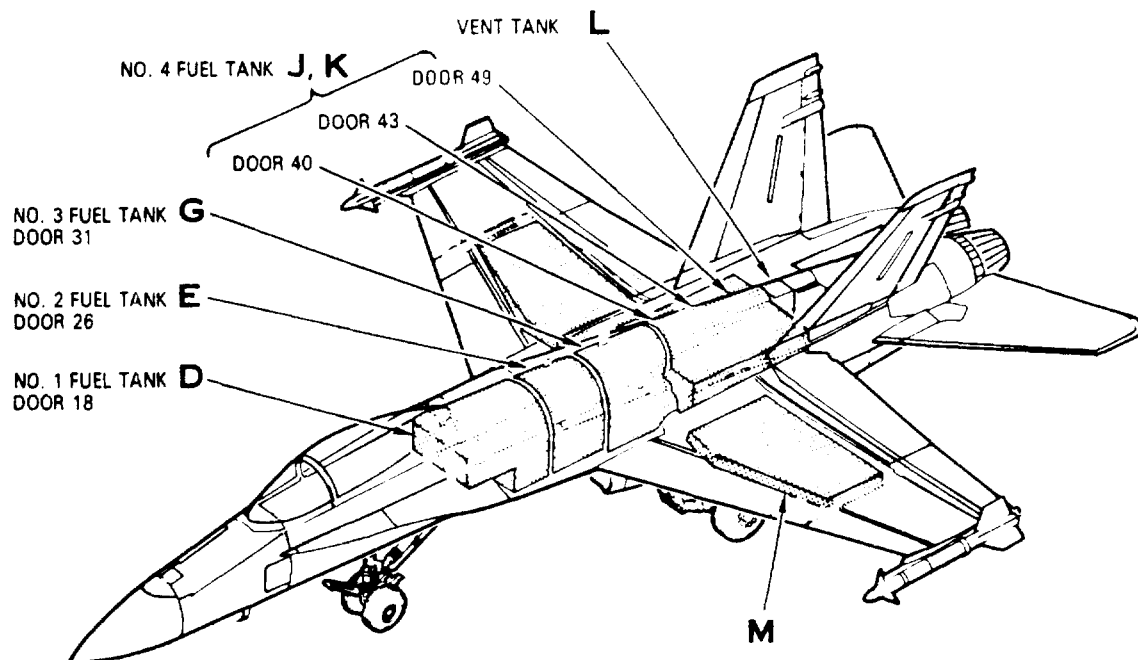
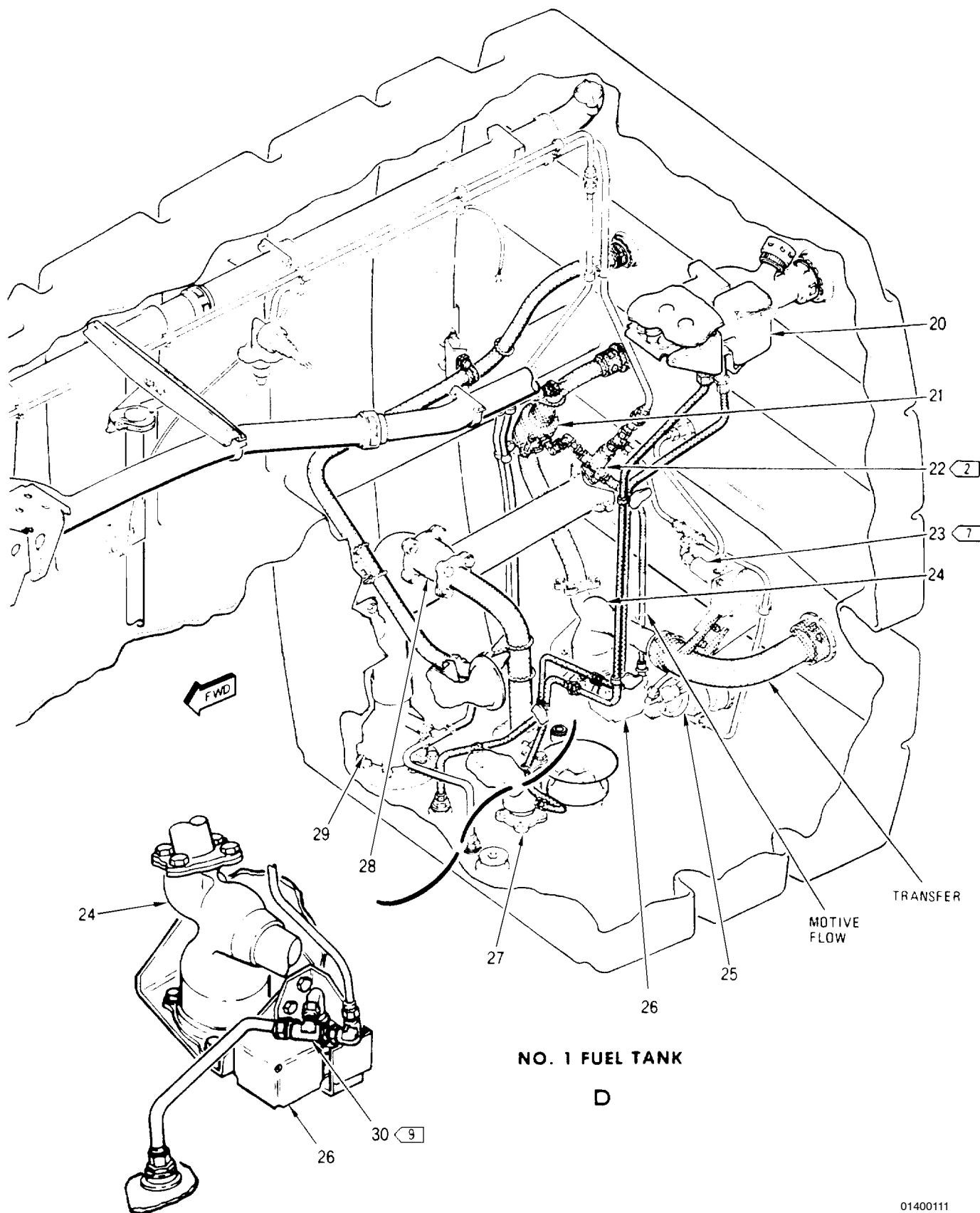
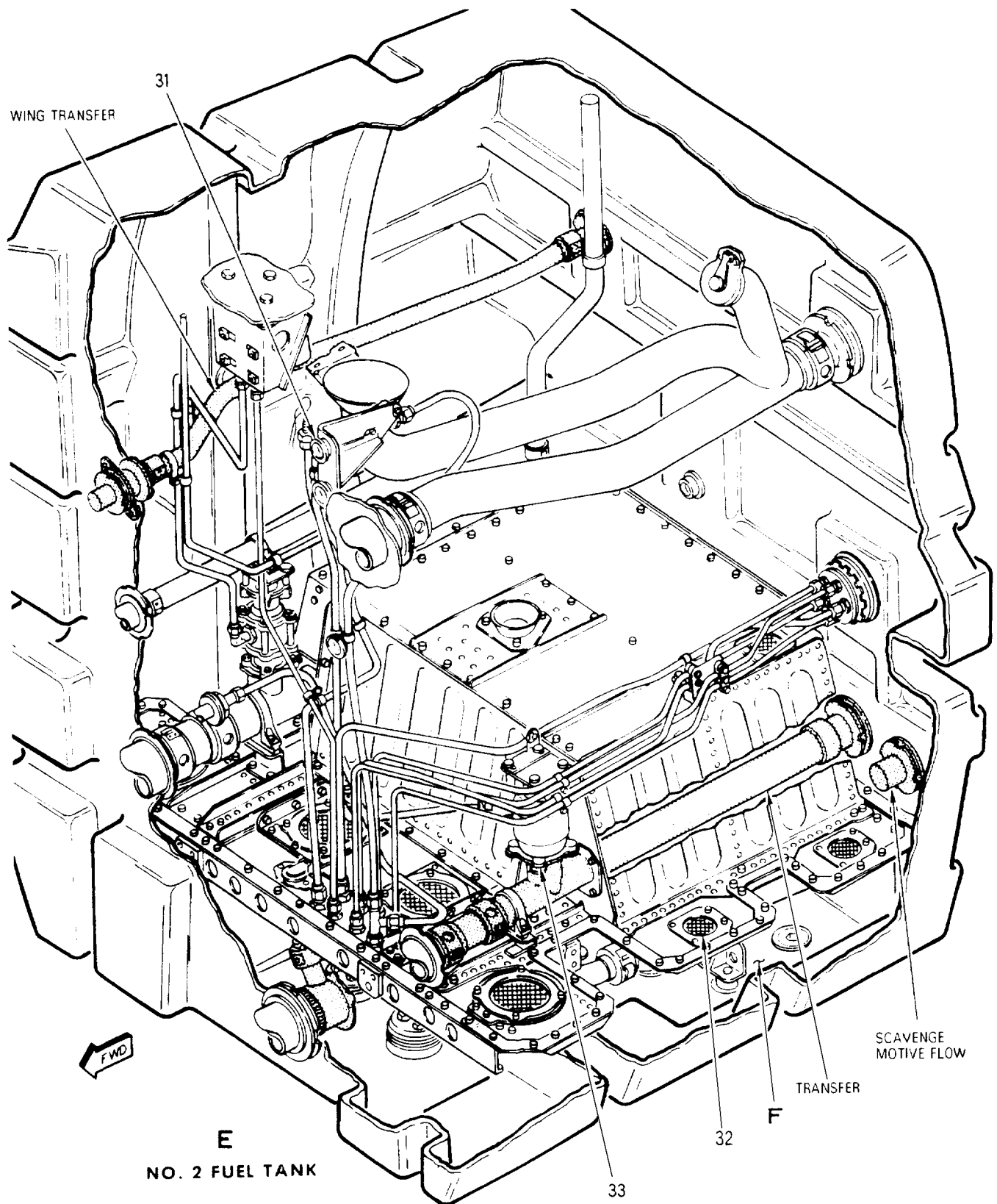


Figure 1. Internal Fuel Transfer System Component Locator (Sheet 10)



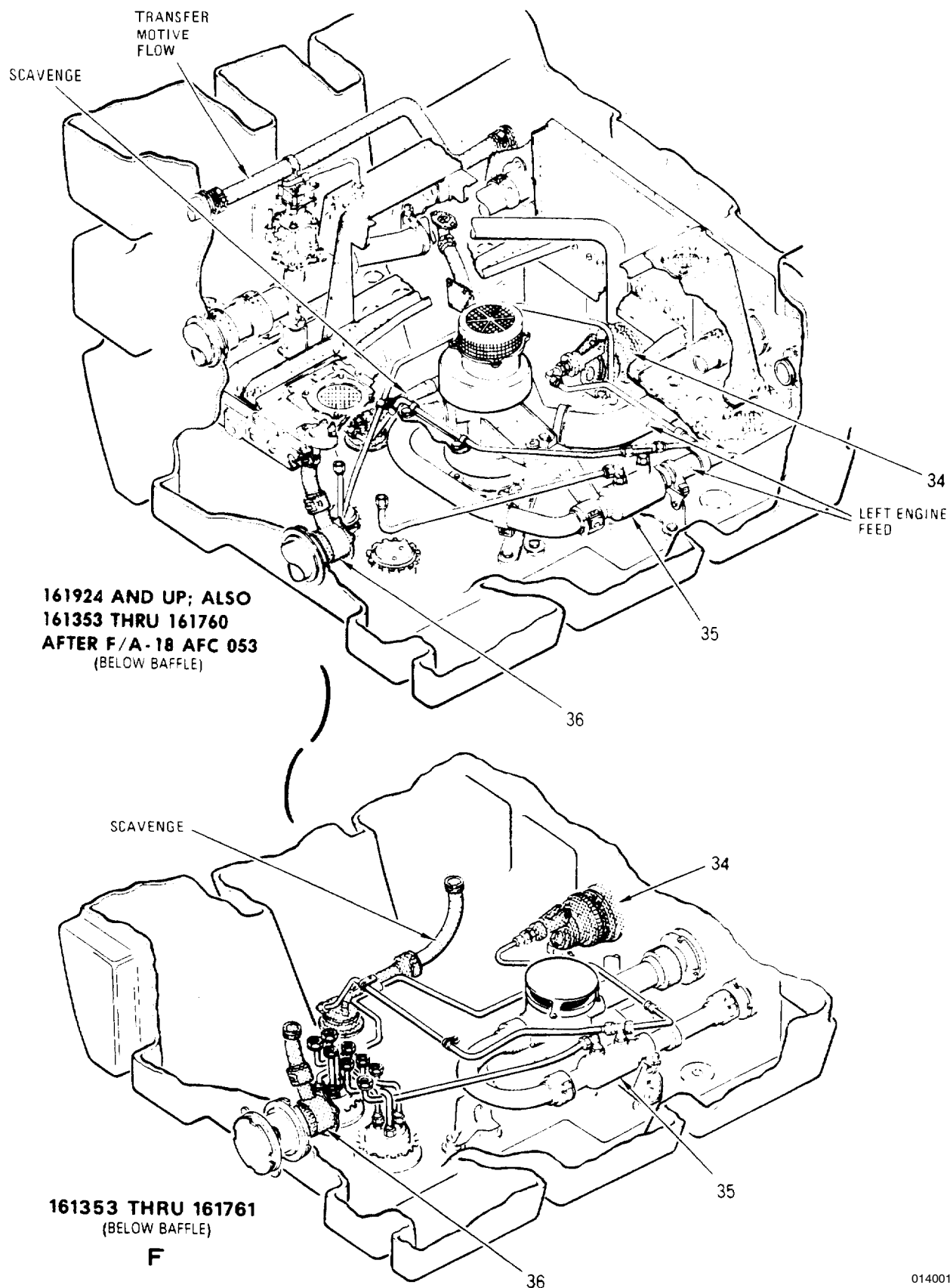
01400111

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 11)



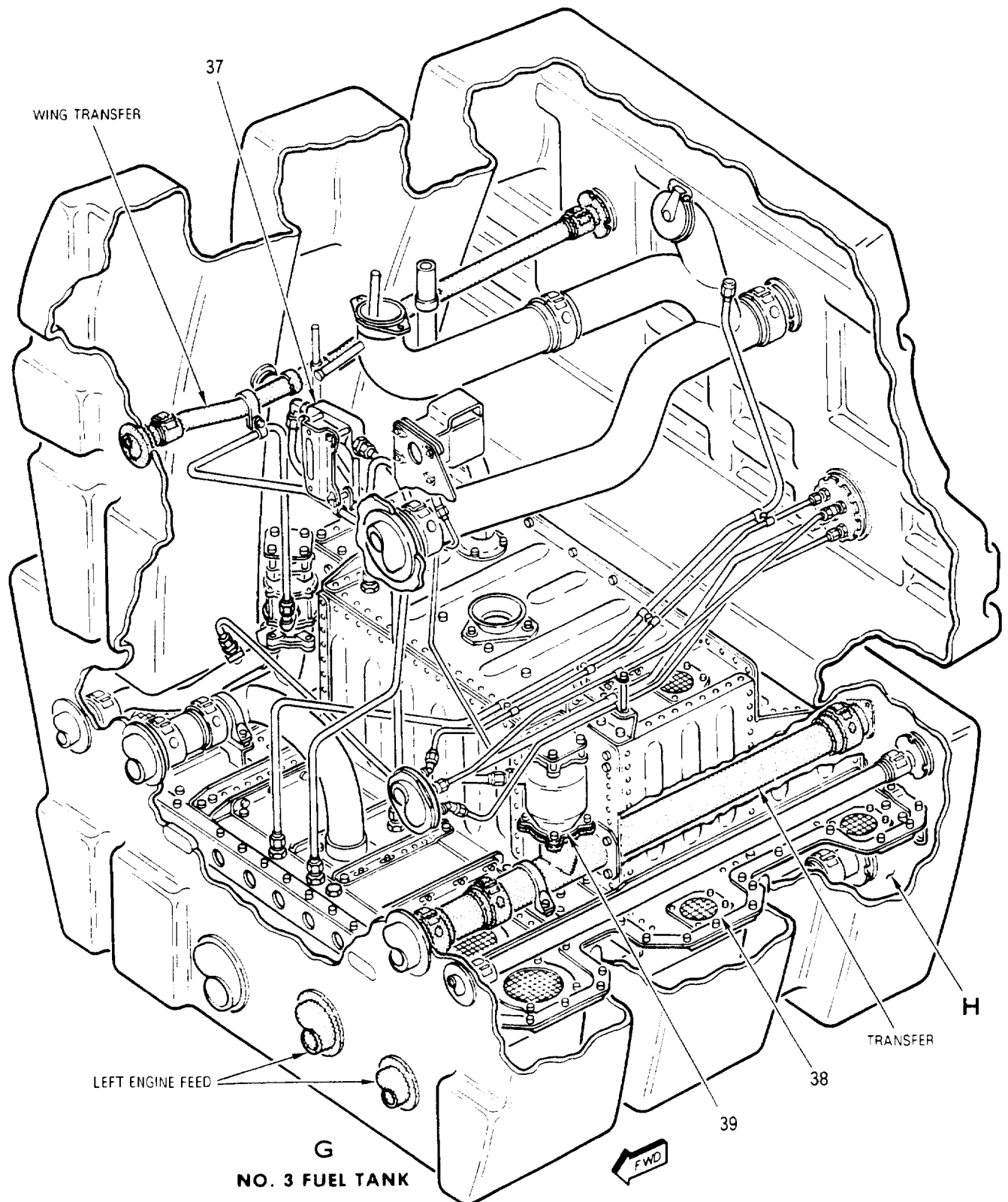
01400112

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 12)



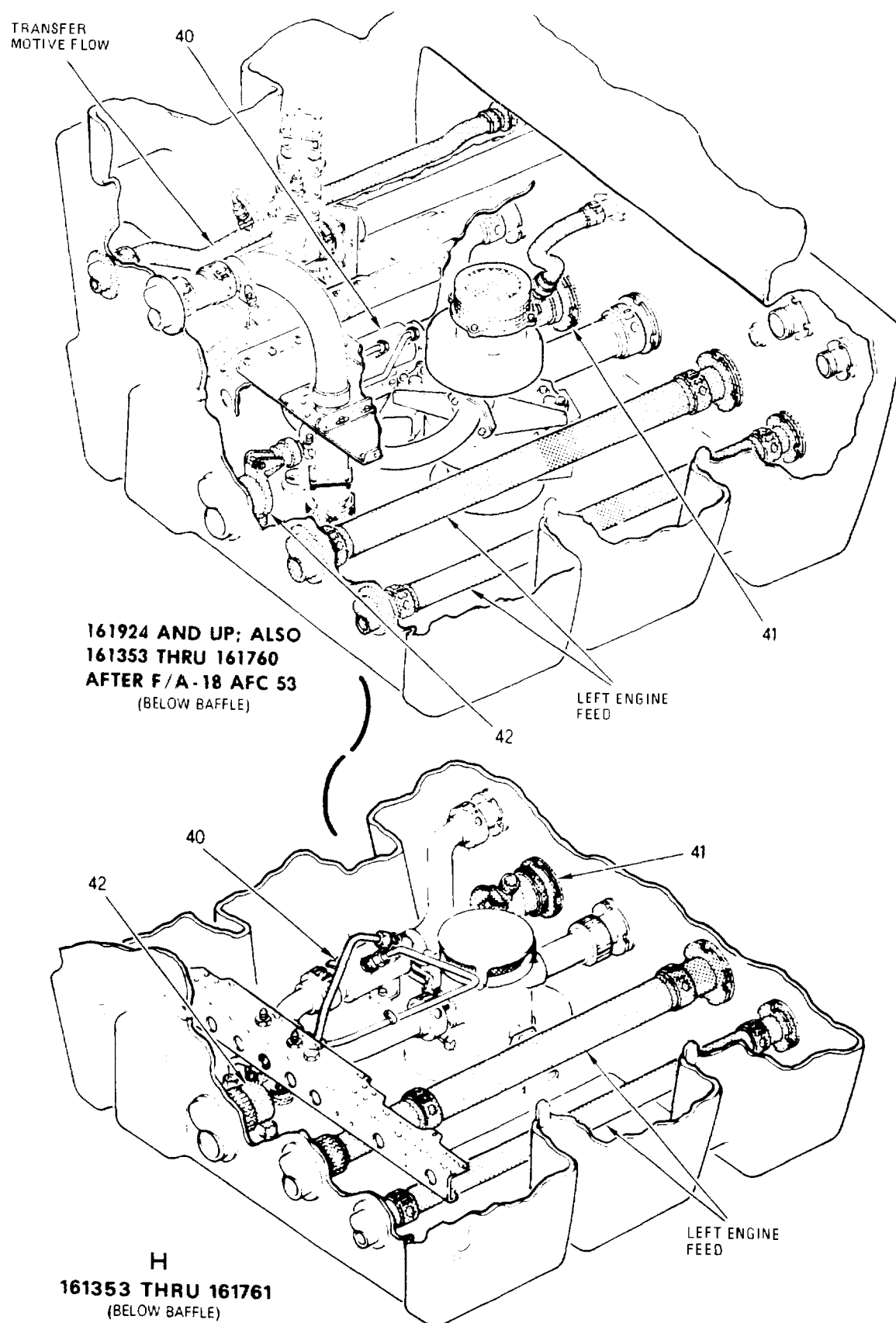
01400113

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 13)



01400114

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 14)



01400115

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 15)

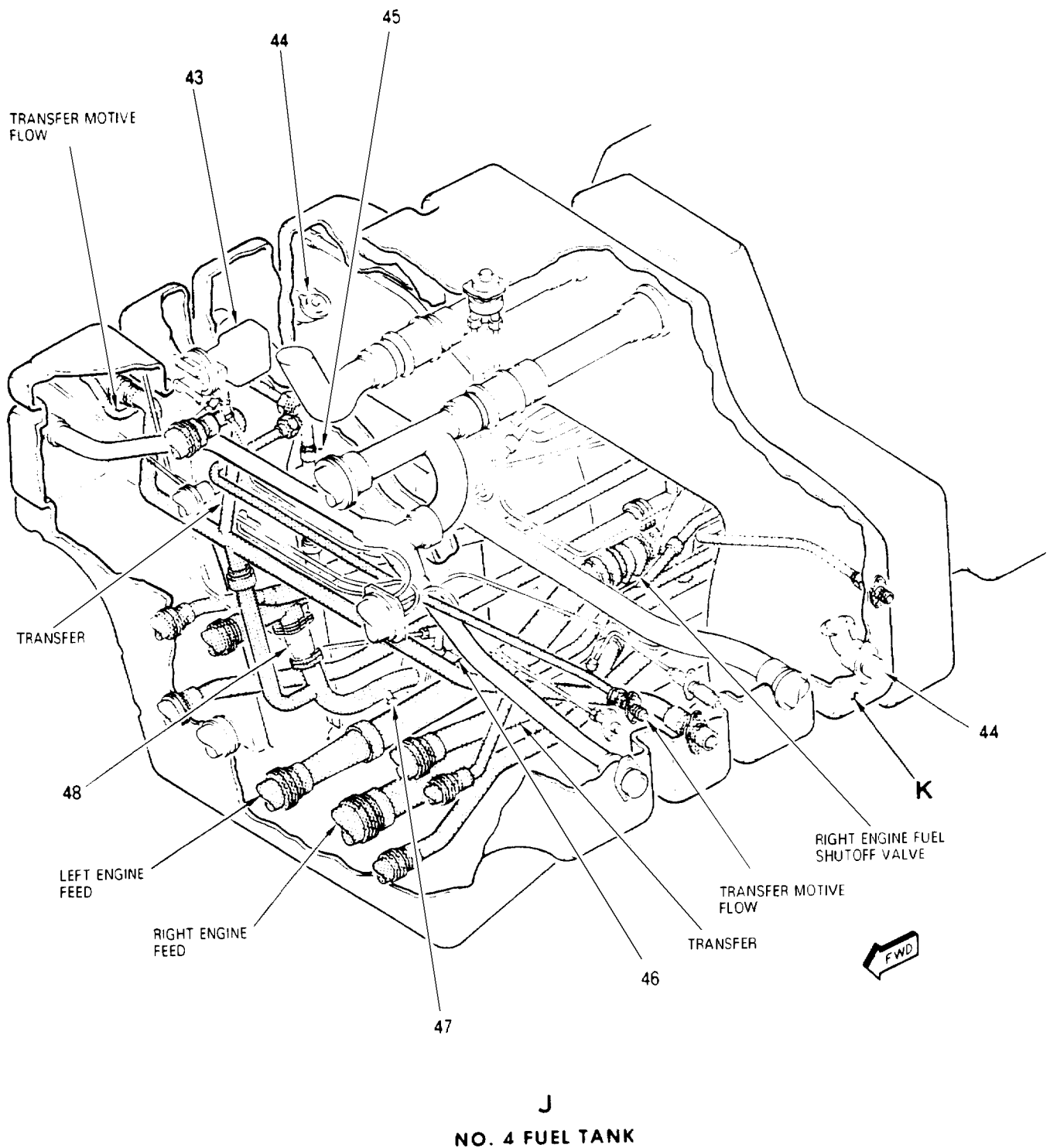
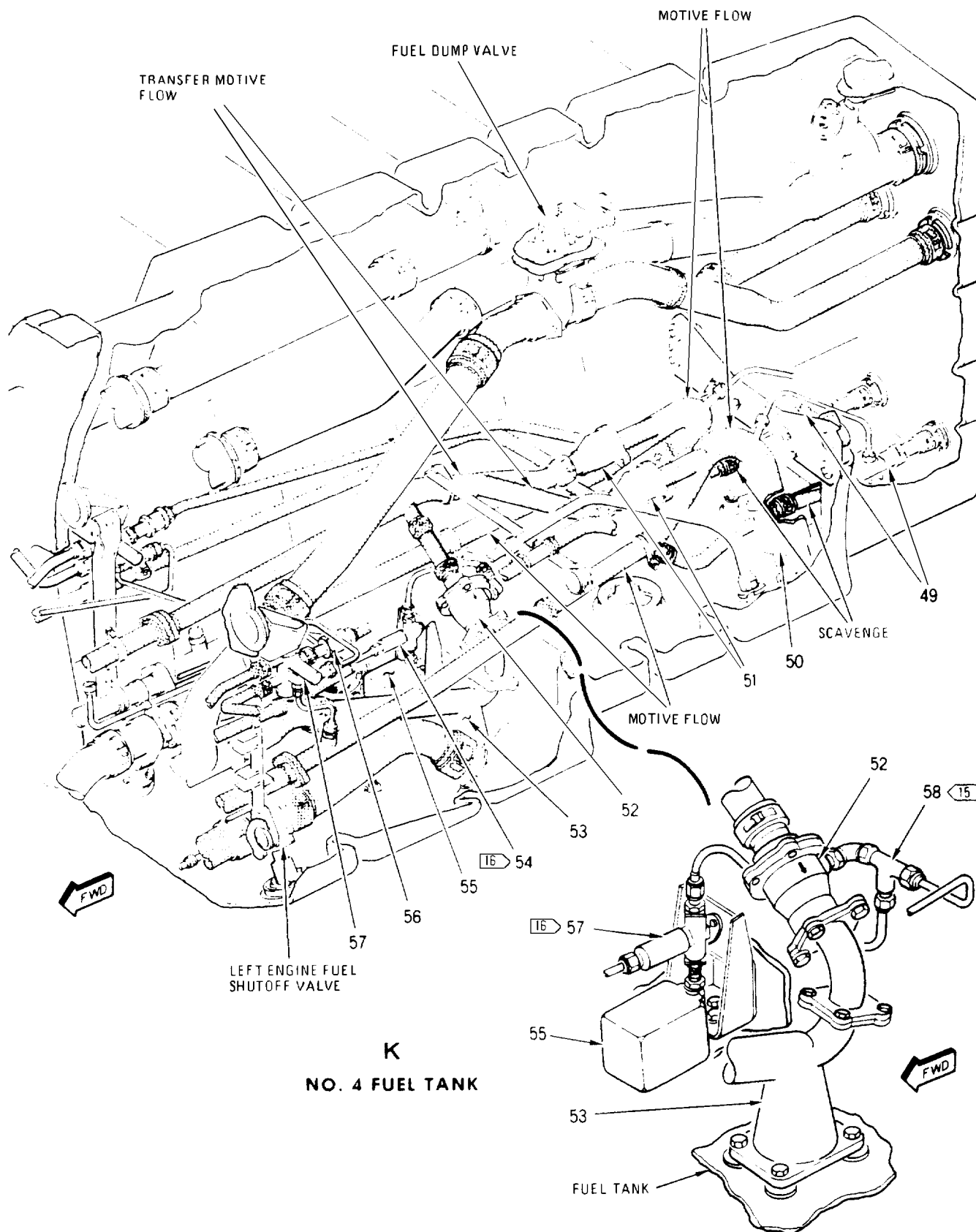
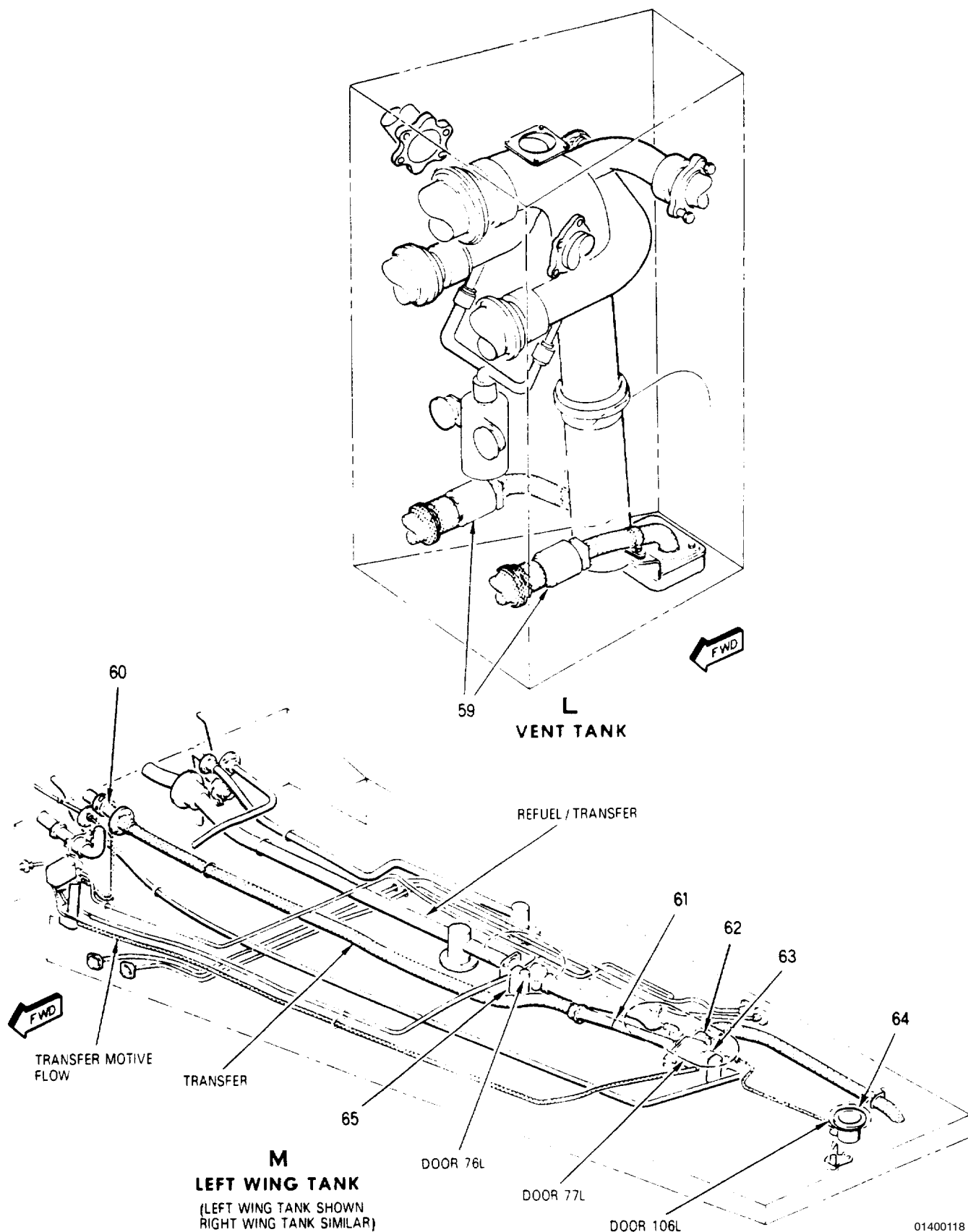


Figure 1. Internal Fuel Transfer System Component Locator (Sheet 16)



01400117

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 17)



01400118

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 18)

Nomenclature	Index No.	Ref Des
AIR DATA COMPUTER CP-1334/A	6	70A-F001
CONTROL-CONVERTER C2-10382/A	7	82A-F001
DIGITAL DATA COMPUTER NO. 1	10	83A-E001
DIGITAL DISPLAY INDICATOR ID-2150/ASM-612	4	85A-G003
EXT LT CONTROL PANEL ASSEMBLY INTR WING SWITCH	1	52A-H091 5S-H026
FUEL CHECK PANEL	3	5A-B019
FUEL DIVERTER VALVE LEFT RIGHT	57	5L-P119 5L-R118
FUEL LEVEL CONTROL SELECTOR VALVE	5	5VAG579
FUEL QUANTITY GAGING INTERMEDIATE DEVICE	9	5A-F014
17 FUEL TRANSFER TUBE AND STRAINER LEFT RIGHT	60	5FAU681 5FAV682
FUSELAGE TRANSFER PRESSURE TRANSDUCER	14	5MTP126
HOT FUEL RECIRCULATION CHECK VALVE LEFT RIGHT	56	5VAP585 5VAR84
LEFT DIGIT L DISPLAY INDICATOR IP-1317()	2	80A-H001
MOTIVE FLOW/BOOST PUMP LEFT RIGHT	11	5BAS515 5BAT514
MOTIVE FLOW CHECK VALVE LEFT RIGHT	50	5VAP561 5VAR562
NO. 1 FUEL TANK FUEL LEVEL CONTROL SHUTOFF VALVE	27	5VAP541
7 NO. 1 FUEL TANK FUEL LOW LEVEL SHUTOFF VALVE	23	5L-E171
NO. 1 FUEL TANK HIGH LEVEL PILOT VALVE	20	5VAP539
NO. 1 FUEL TANK PRESSURE OPERATED INTERCONNECT VALVE	25	6 5VAP538 7 5S-E172

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 19)

Nomenclature	Index No.	Ref Des
NO. 1 FUEL TANK REFUEL/TRANSFER CHECK VALVE	28	5VAP532
2 NO. 1 FUEL TANK TRANSFER CONTROL VALVE	22	5L-F160
NO. 1 FUEL TANK TRANSFER JET EJECTOR	24	5BAP536
NO. 1 FUEL TANK TRANSFER PILOT VALVE	26	5VAP537
9 NO. 1 FUEL TANK TRANSFER PRECHECK VALVE	30	5VAP606
NO. 1 FUEL TANK TRANSFER SHUTOFF VALVE	21	5VAP534
NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY	16	52A-D024
NO. 2 FUEL TANK FUEL LEVEL SENSOR	31	5VAP595
NO. 2 FUEL TANK INVERTED FLIGHT BAFFLE CHECK VALVES (4)	32	
NO. 2 FUEL TANK PRESSURE OPERATED INTERCONNECT VALVE	34	5S-R132
NO. 2 FUEL TANK PRESSURE SHUTOFF VALVE	33	5VAP597
NO. 2 FUEL TANK WASH FILTER	35	5FAP632
NO. 2 FUEL TANK GRAVITY FEED CHECK VALVE	36	5VAP600
NO. 3 FUEL TANK FUEL LEVEL SENSOR	37	5VAP590
NO. 3 FUEL TANK GRAVITY FEED CHECK VALVE	42	5VAP608
NO. 3 FUEL TANK INVERTED FLIGHT BAFFLE CHECK VALVES (4)	38	
NO. 3 FUEL TANK PRESSURE OPERATED INTERCONNECT VALVE	41	5S-R131
NO. 3 FUEL TANK TRANSFER SHUTOFF VALVE	39	5VAP605
NO. 3 FUEL TANK WASH FILTER	40	5FAP633
NO. 4 FUEL TANK AUTOMATIC DRAIN VALVE	47	5VAP568
NO. 4 FUEL TANK FUEL LEVEL CONTROL SHUTOFF VALVE	46	5VAP569
NO. 4 FUEL TANK HIGH LEVEL PILOT VALVE	43	5VAP556

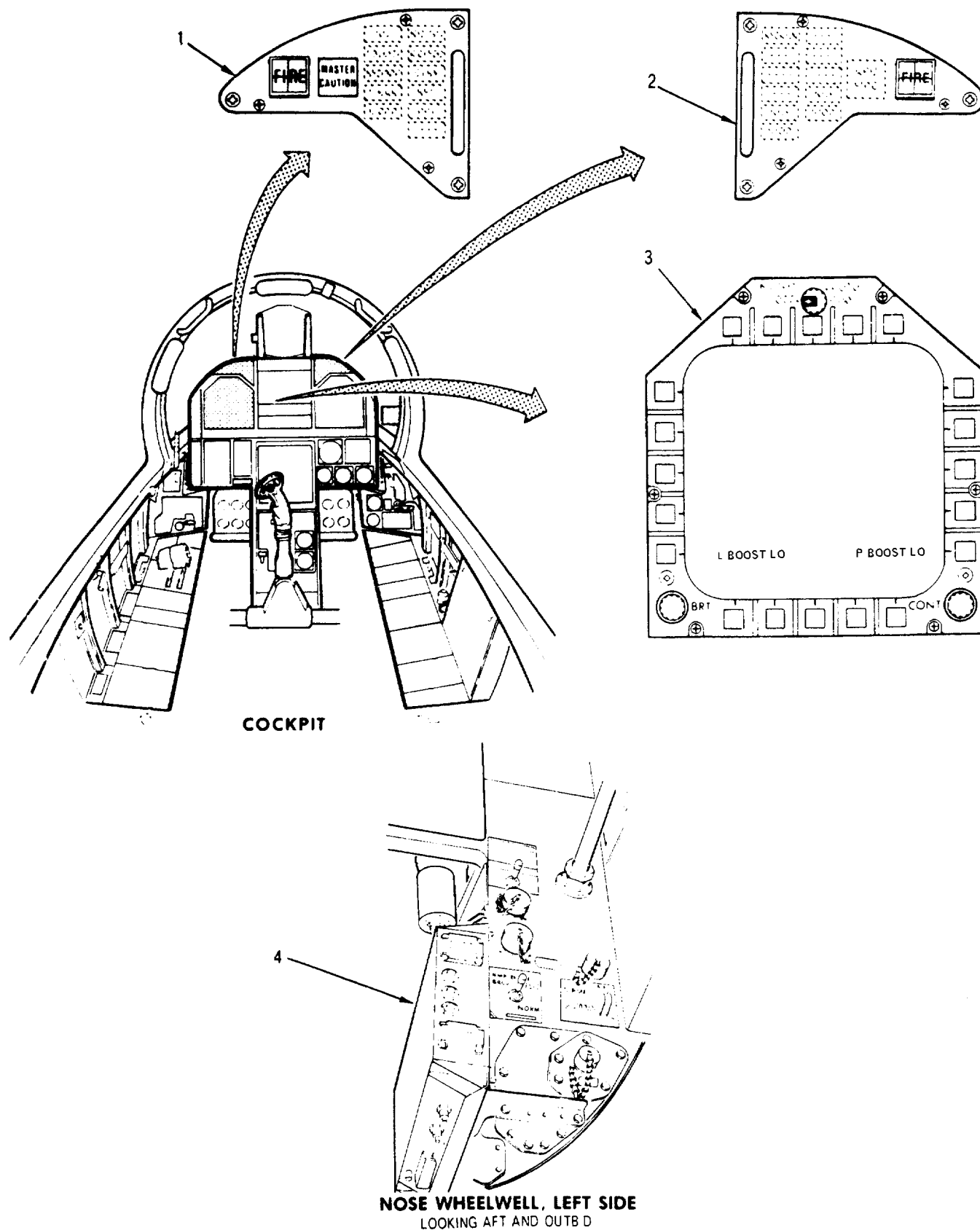
Figure 1. Internal Fuel Transfer System Component Locator (Sheet 20)

Nomenclature	Index No.	Ref Des
NO. 4 FUEL TANK REFUEL/TRANSFER CHECK VALVE	48	5VAP557
16 NO. 4 FUEL TANK TRANSFER CONTROL VALVE	54	5L-R167
NO. 1 FUEL TANK TRANSFER JET EJECTOR	53	5BAP567
NO. 4 FUEL TANK TRANSFER PILOT VALVE	55	5VAP519
9 NO. 1 FUEL TANK TRANSFER PRECHECK VALVE	58	5VAP589
NO. 4 FUEL TANK TRANSFER SHUTOFF VALVE	52	5VAP565
NO. 4 FUEL TANK VENT TANK SCAVENGE JET EJECTOR LEFT RIGHT	49	5BAP559 5BAR560
NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	19	52A-C057
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	17	52A-C159
12 NO. 9 RELAY PANEL ASSEMBLY	18	52A-C161
REFUEL/DEFUEL SHUTOFF VALVE	29	5VAP533
SIGNAL DATA CONVERTER CV-3493/ASM-612	13	85A-N002
SIGNAL DATA RECORDER RO-508/ASM-612	8	85A-F001
TRANSFER MOTIVE FLOW CHECK VALVE LEFT RIGHT	51	5VAP563 5VAR564
VENT TANK SCAVENGE CHECK VALVE LEFT RIGHT	59	5VAS602 5VAT612
WING DAMAGE FUEL SHUTOFF VALVE	45	5L-R110
WING FUEL GRAVITY CHECK VALVE LEFT RIGHT	44	5VAP587 5VAR588
8 WING FUEL TRANSFER TUBE/STRAINER LEFT RIGHT	12	5FAU681 5FAV682

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 21)

Nomenclature	Index No.	Ref Des
WING LOW LEVEL REFUEL/DEFUEL PILOT LEFT RIGHT	65	5VAU551 5FAV682
WING TRANSFER JET EJECTOR LEFT RIGHT	61	5BAU548 5VAU549
17 WING TRANSFER JET EJECTOR STRAINER LEFT RIGHT	62	5FAU685 5FAV686
17 WING TRANSFER MOTIVE FLOW PILOT VALVE LEFT RIGHT	64	5VAU528 5VAV529
WING TRANSFER PRESSURE TRANSDUCER	15	15MTR125
WING TRANSFER MOTIVE FLOW SHUTOFF VALVE LEFT RIGHT	63	5VAU543 5VAV544
<p style="text-align: center;">LEGEND</p> <p>1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000</p> <p>2 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39.</p> <p>3 161353 THRU 161519.</p> <p>4 161353 THRU 161528.</p> <p>5 161702 AND UP.</p> <p>6 161353 THRU 161761 BEFORE F/A-18 AFC 39.</p> <p>7 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39.</p> <p>8 161735 THRU 161924.</p> <p>9 161353 THRU 161965.</p> <p>10 161924 THRU 161987, ALSO 161520 THRU 161761 AFTER F/A-18 AFC 053.</p> <p>11 161520 THRU 161987.</p> <p>12 162394 AND UP; ALSO 161520 THRU 161761 AFTER F/A-18 048.</p> <p>13 161924 AND UP; ALSO 161520 THRU 161761 BEFORE F/A-18 AFC 053.</p> <p>14 162394 AND UP; ALSO 161520 THRU 161761 AFTER F/A-18 AFC 048.</p> <p>15 161353 THRU 161965, BEFORE F/A-18 AFC 053.</p> <p>16 161924 AND UP; ALSO 161520 THRU 161761 AFTER F/A-18 AFC 053.</p> <p>17 161924 AND UP; MAY BE INSTALLED ON 161353 THRU 161761.</p>		

Figure 1. Internal Fuel Transfer System Component Locator (Sheet 22)



01400201

Figure 2. Engine Fuel Supply System Component Locator (Sheet 1 of 9)

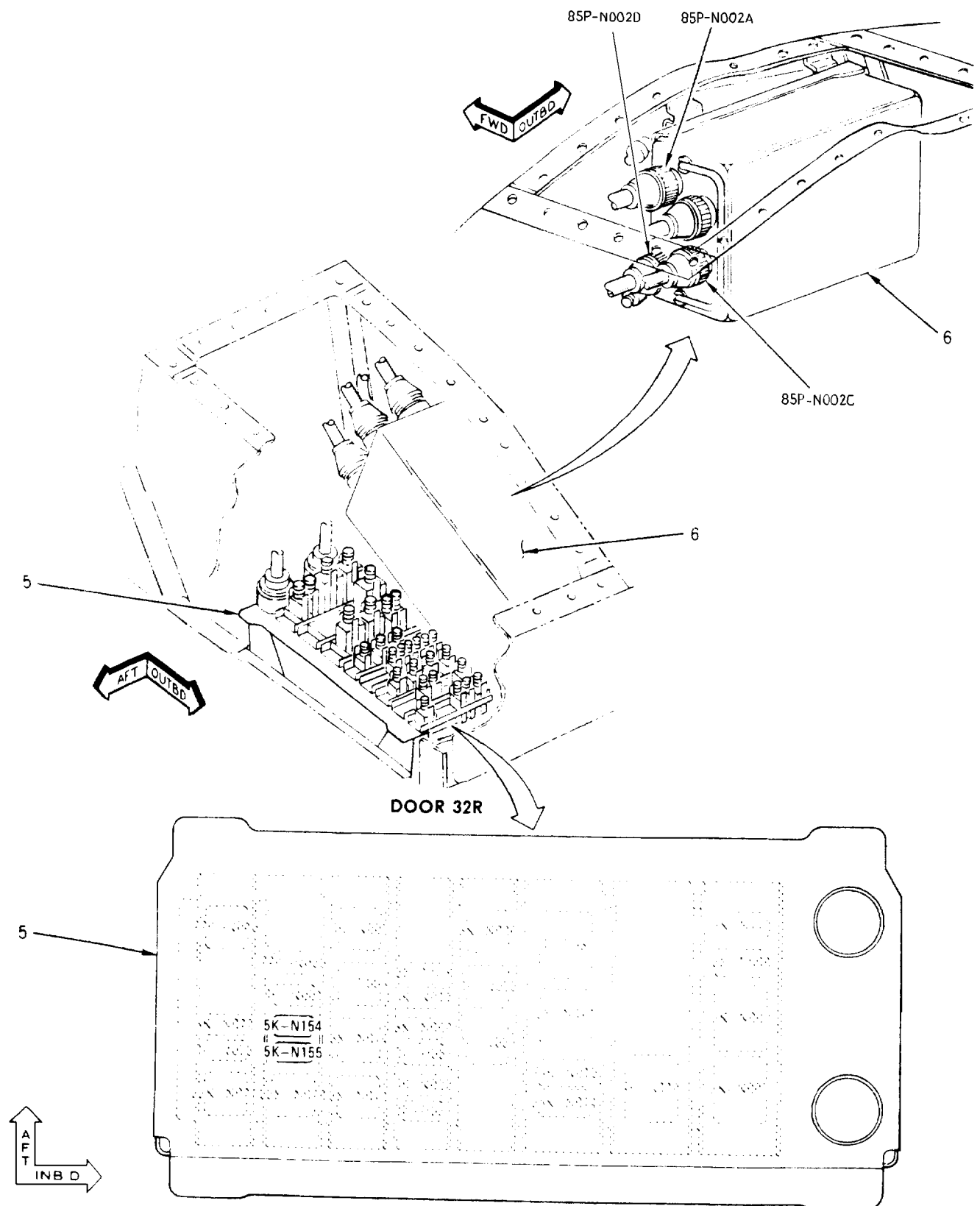
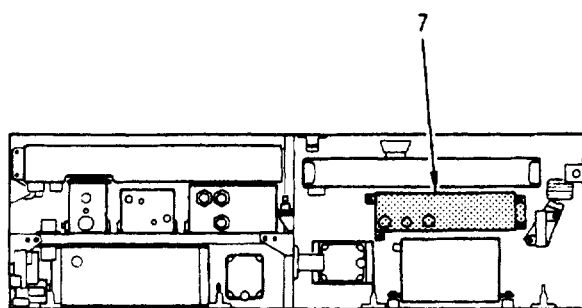
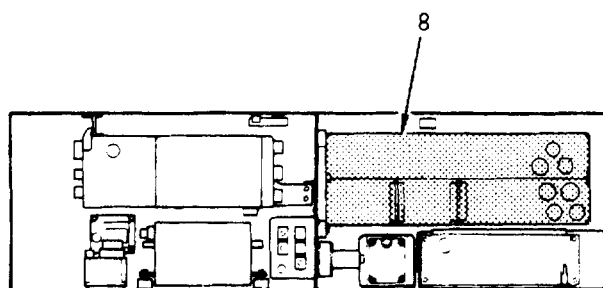


Figure 2. Engine Fuel Supply System Component Locator (Sheet 2)



FWD
DOOR 10R

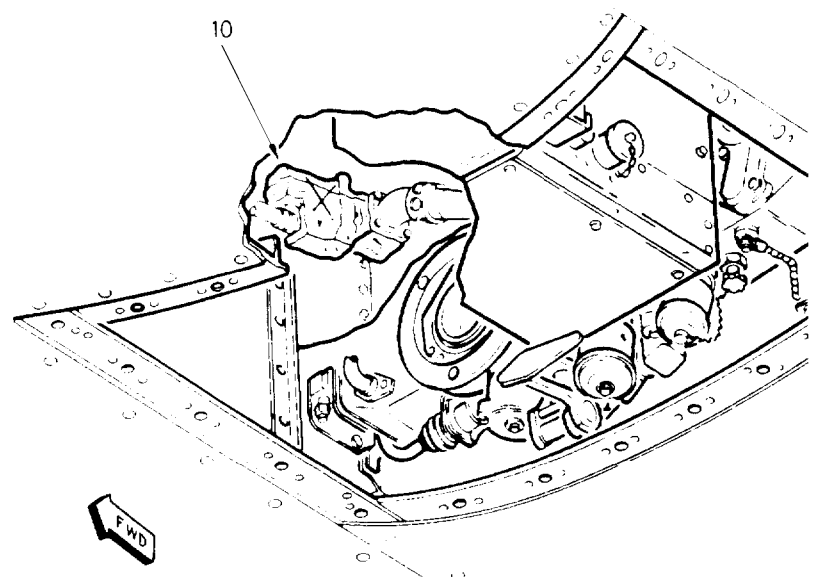
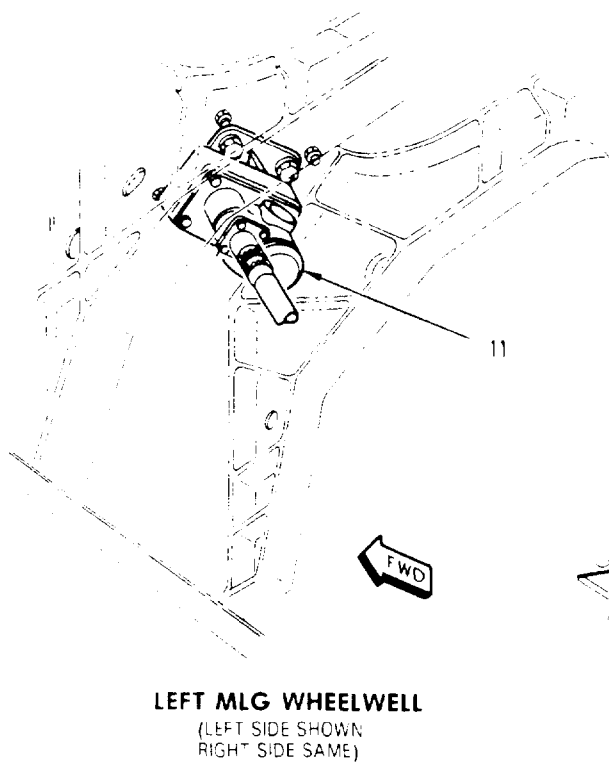
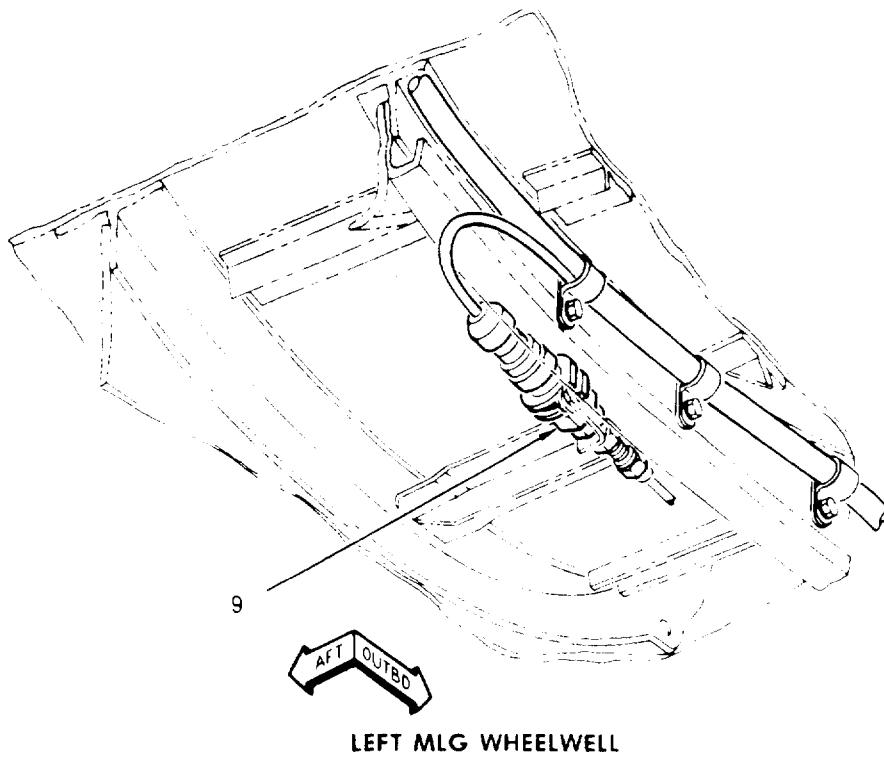
52A-D092 NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A10	5CBD064	R/FUEL S/O VALVE	ESS 24/28VDC
A11	5CBD065	CROSSFEED FUEL	ESS 24/28VDC
A12	5CBD066	L/FUEL S/O VALVE	ESS 24/28VDC



FWD
DOOR 10L

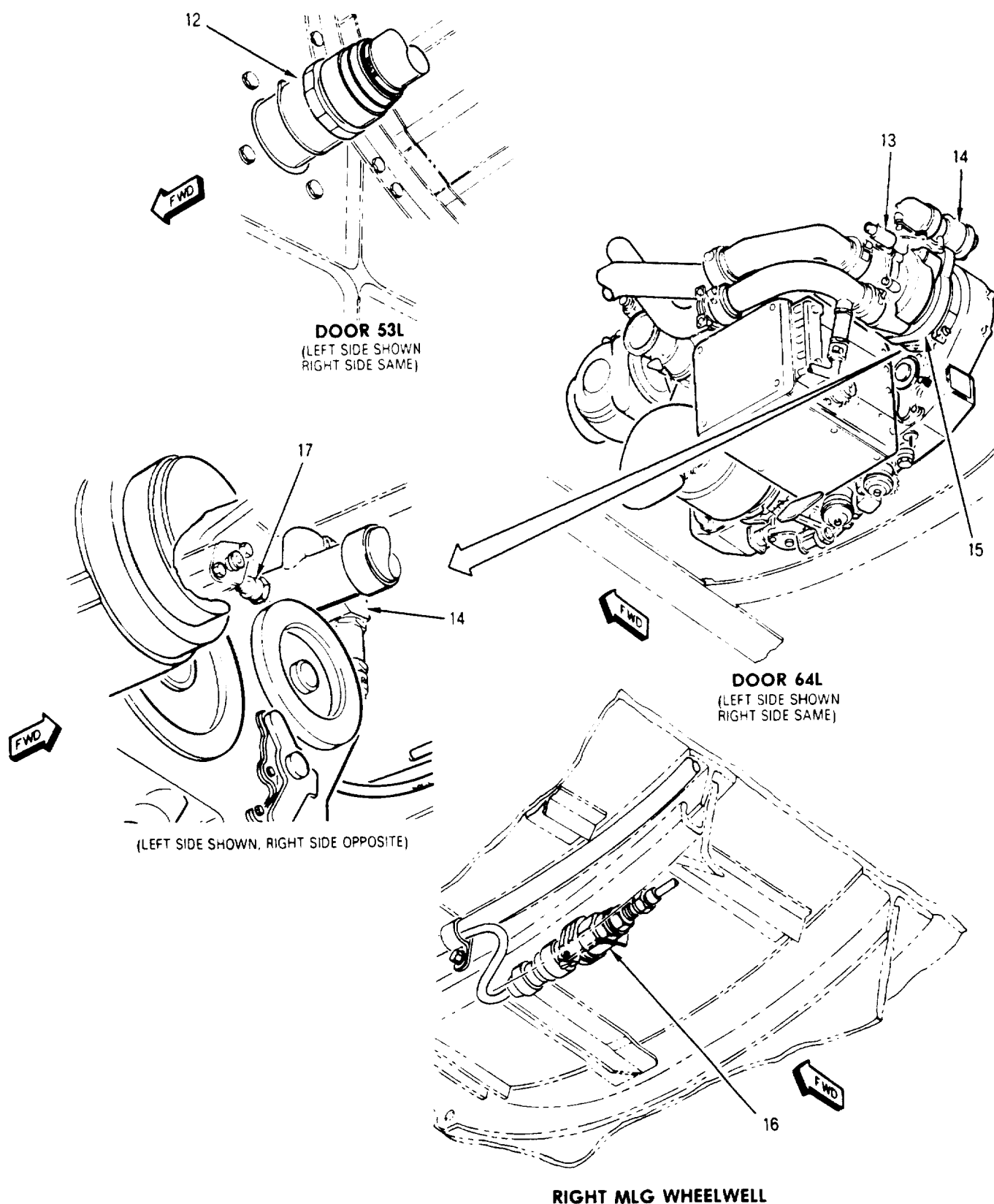
52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
B1	5CBC153	FUEL PRESS	L 28VDC

Figure 2. Engine Fuel Supply System Component Locator (Sheet 3)



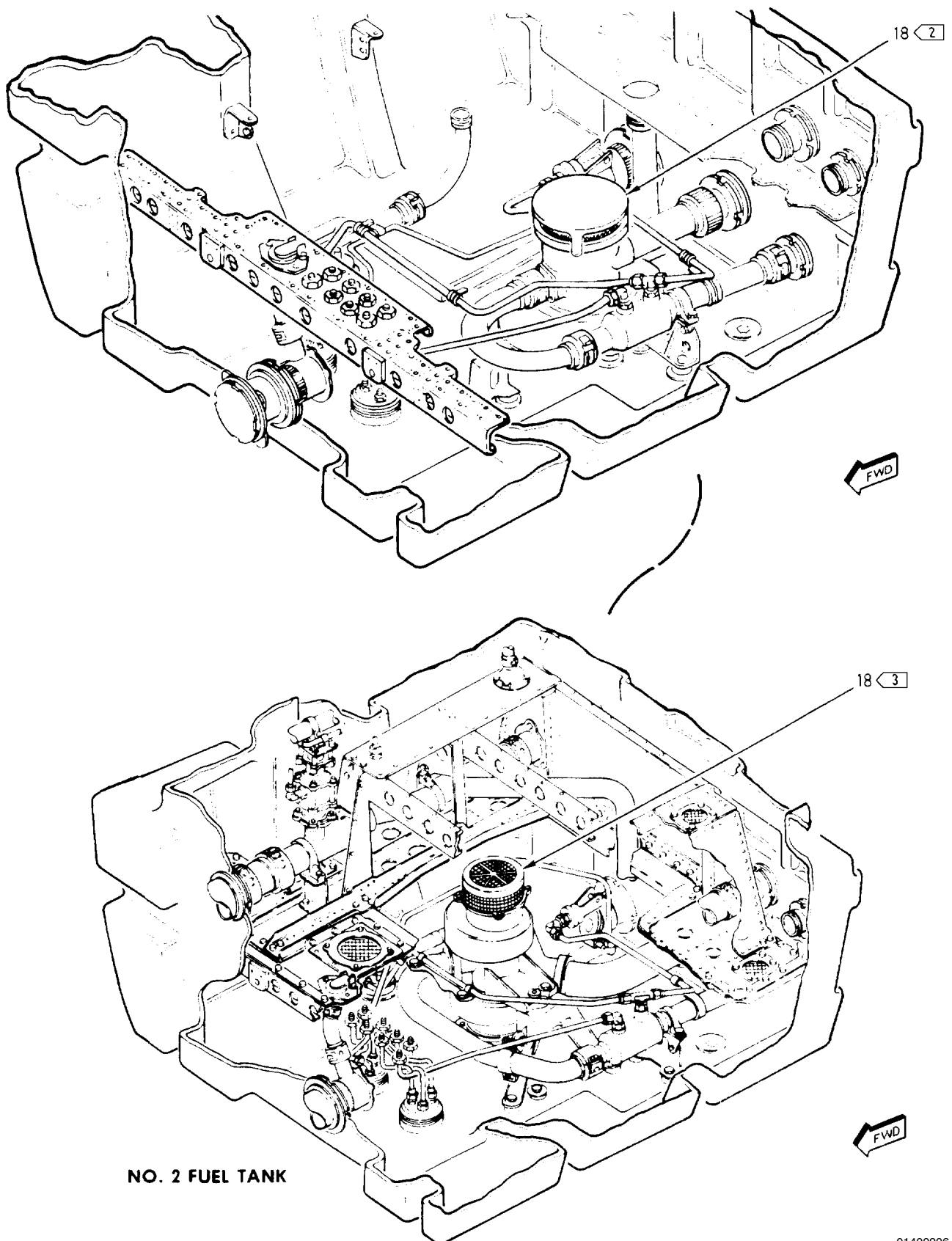
01400204

Figure 2. Engine Fuel Supply System Component Locator (Sheet 4)



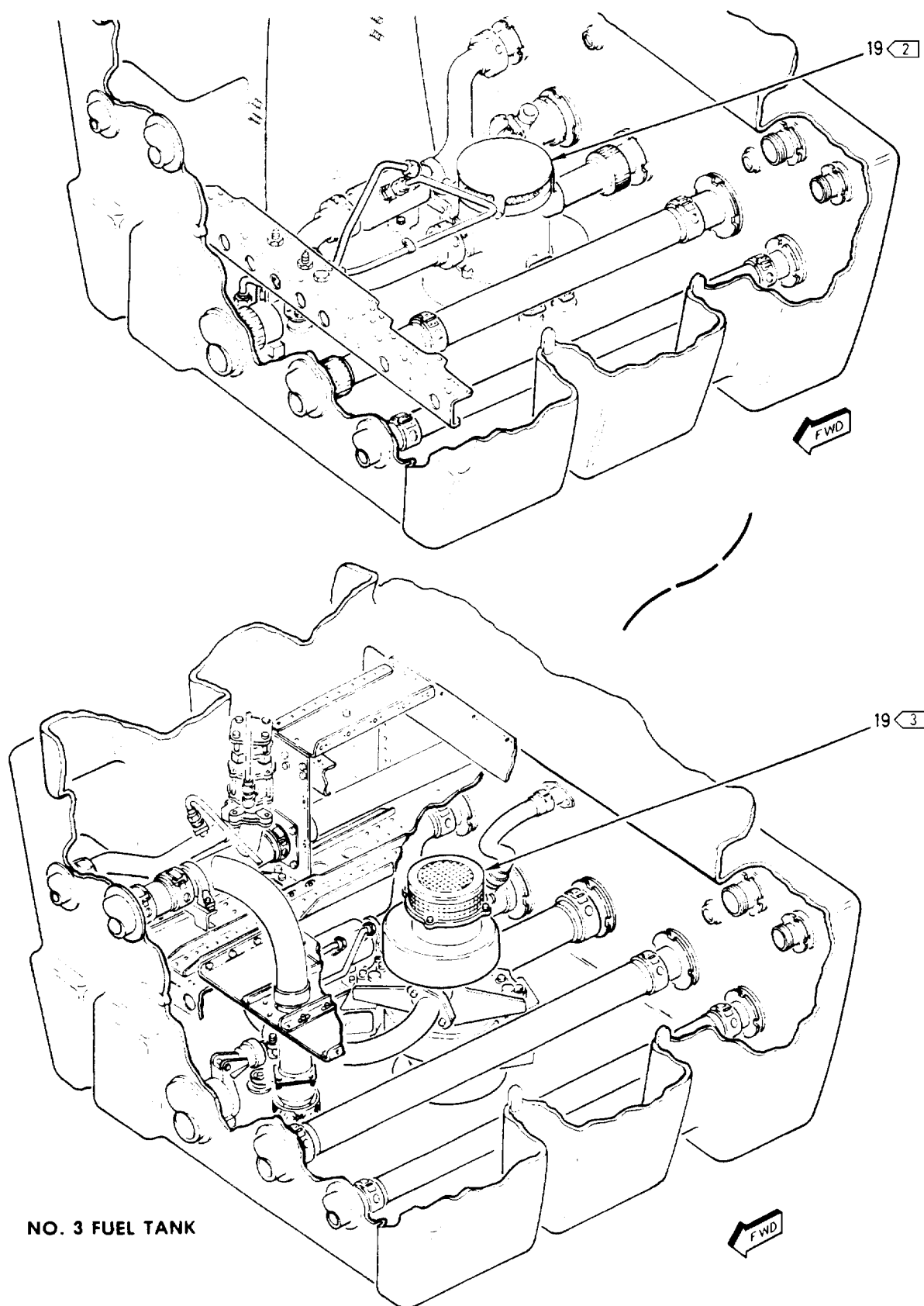
01400205

Figure 2. Engine Fuel Supply System Component Locator (Sheet 5)



01400206

Figure 2. Engine Fuel Supply System Component Locator (Sheet 6)



NO. 3 FUEL TANK

01400207

Figure 2. Engine Fuel Supply System Component Locator (Sheet 7)

Nomenclature	Index No.	Ref Des
BOOST INLET PRESSURE TRANSDUCER LEFT RIGHT	9 16	5MTP127 5MTR128
CROSSFEED MANIFOLD	14	
DIGITAL DISPLAY INDICATOR ID-2150/ASM-612	4	85A-G003
ENGINE FUEL COUPLING CHECK VALVE LEFT RIGHT	12	5VAP639 5VAR640
ENGINE FUEL SHUTOFF VALVE LEFT RIGHT	11	5B-P072 5B-R070
4 FUEL BOOST PRESSURE SWITCH LEFT RIGHT	13	5S-P113 5S-P114
FUEL CROSSFEED SHUTOFF VALVE	10	5B-P071
FUEL FEED LINE TEMPERATURE SENSOR LEFT RIGHT	17	5A-P111 5A-R112
LEFT DIGITAL DISPLAY INDICATOR IP-1317()	3	80A-H001
LH ADVISORY AND THREAT WARNING INDICATOR PANEL LEFT ENGINE FIRE WARNING LIGHT MASTER CAUTION LIGHT/SWITCH	1	52A-H073 4DSJ004
MOTIVE FLOW/BOOST PUMP LEFT RIGHT	15	5BAS515 5BAT514
2 NO. 2 FUEL TANK ENGINE FUEL BOOST JET EJECTOR	18	5BAP599
3 NO. 2 FUEL TANK ENGINE FUEL TURBINE BOOST PUMP		5BAP679
2 NO. 3 FUEL TANK ENGINE FUEL BOOST JET EJECTOR	19	5BAP591
3 NO. 3 FUEL TANK ENGINE FUEL TURBINE BOOST PUMP		5BAR680

Figure 2. Engine Fuel Supply System Component Locator (Sheet 8)

Nomenclature	Index No.	Ref Des
NO. 4 RELAY PANEL ASSEMBLY	5	52A-N118
NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY	7	52A-D092
NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	8	52A-C057
RH ADVISORY AND THREAT WARNING INDICATOR PANEL	2	52A-J074
RIGHT ENGINE FIRE WARNING LIGHT AND SWITCH		4DSJ004
SIGNAL DATA CONVERTER CV-3493/ASM-612	6	85A-N002
LEGEND		
1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000		
2 161353 THRU 161761 BEFORE F/A-18 AFC 018.		
3 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 018.		
4 163119 AND UP; ALSO 161353 THRU 161924 BEFORE F/A-18 IAFC 053 OR 161353 THRU 163118 AFTER F/A-18 AFC 070.		

Figure 2. Engine Fuel Supply System Component Locator (Sheet 9)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST
HOT FUEL RECIRCULATION SYSTEM

Reference Material

Plane Captain Manual	A1-F18AC-PCM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Controls and Displays, Figure 3	14
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 1	11
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 2	12
Hot Fuel Recirculation System Test Component Locator, Figure 4	16
Hot Fuel Recirculation System Test, Table 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—

NOTE

The Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP010 00) may be used while doing this test.

Table 1. Hot Fuel Recirculation System Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System Power Plant and Related Systems Secondary Power Systems Multipurpose Display Group		
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1001	Fuel System Test Set	
74D460108-1003	Fuel System Test Set	
74D460125-1001	Special Purpose Fuel	
(161353 THRU 161359 BEFORE F/A-18	Test Set Cable	
AFC 53 (LAND BASE ONLY))		
—	External Electrical	
	Power Source	
Materials Required		
None		
1. PREPARATION.		
NOTE		
To test the wing fuel tank fuel transfer rate, each wing tank must be 400 lb. To allow the wing tanks to transfer fuel, the total INTR fuel amount should be 8000 lb maximum.		
a. If external fuel tanks are installed; on cockpit FUEL system control panel, set EXT TANKS WING and CTR switches to STOP (fig 4).		
b. On the cockpit FUEL QTY indicator, set the FUEL QTY selector knob to INTR WING.		

Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. On FUEL QTY indicator, if LEFT and RIGHT counters do not show internal wing tanks at 400 lb each and if total INTR fuel amount is more than 8000 lb, defuel aircraft to 3500 pounds total INTR (A1-F18AC-PCM-000).</p> <p>d. Refuel aircraft (A1-F18AC-PCM-000) until internal wing tanks are 400 lb each and total INTR is not more than 8000 lb.</p> <p>e. Open door 10L (A1-F18AC-LMM-010).</p> <p>f. Turn off electrical power (A1-F18AC-LMM-000).</p> <p>g. On no. 8 circuit breaker/ relay panel assembly, open the FUEL LOW LVL WRN circuit breaker (door 10L).</p> <p>2. FUEL SYSTEM TEST SET HOOKUP.</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 1 or fig 2).</p> <p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p>		

Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.</p> <p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per substeps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 1).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 2).</p> <p>(2) Connect test cable P1 to J2 on test set.</p>		

Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 3), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICATOR- Selector knob to FEED</p> <p>f. On 74D460108-1003 test set, set switches per substep below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - ON S14 - ON S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>i. On test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p> <p>k. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p>	<p>OFF flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p> <p>OFF flag black and ID flag black.</p>	<p>Replace test set.</p> <p>Do table 3, WP013 02.</p> <p>Replace test set.</p>

Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle. m. Release D3 FUEL INDICATOR selector knob.	Counters and needle do not hang up. LEFT counter moves to 550 to 650 lb. RIGHT counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTR LBS needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.	Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell, left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.
3. TRANSDUCER CHANNEL BIT (QA).		
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 3, WP013 02.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 3, WP013 02.
c. Release Switch S9.		
4. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>The WING XFER, LEFT FEED and RIGHT FEED pressure transducers are monitored for this test. If a transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to RIGHT FEED. Record D2 display (non-nulled).		
b. Set switch S2 to OFF.		
c. Set switch S1 to WING XFER. Record D1 display (non-nulled).		
d. Set switch S1 to LEFT FEED. Record D1 display (non-nulled).		

Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>e. Set switch S9 to NULL and release.</p> <p>f. Set switch S1 to WING XFER. Set switch S9 to NULL and release.</p> <p>g. Set switch S1 to OFF.</p> <p>h. Set switch S2 to RIGHT FEED. Set switch S9 to NULL and release.</p> <p>5. TEST.</p> <p>a. On fuel system test set, set switches as listed below:</p> <p style="padding-left: 40px;">S1 - WING XFER S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - closed D3 - FUEL INDICATOR- Selector knob to INTR WING.</p> <p>b. On 74D460108-1003 test set, set switches as listed below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - NORM S14 - ON S15 - ON</p> <p>c. Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p> <p>d. Set up the cockpit Left Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).</p> <p>e. Push MENU button, then push ENG button. Record left and right engine fuel inlet temperature (FIT).</p>	<p>D1 displays 00.0.</p> <p>D1 displays 000.</p> <p>D2 displays 000.</p> <p>Left and right engine fuel inlet temperature (FIT) approximately the same.</p>	<p>Do table 3, WP036 00.</p> <p>Do table 1, WP036 00.</p> <p>Do table 4, WP036 00.</p> <p>Allow enough time for temperatures to equalize.</p>

Table 1. Hot Fuel Recirculation System Test (Continued)

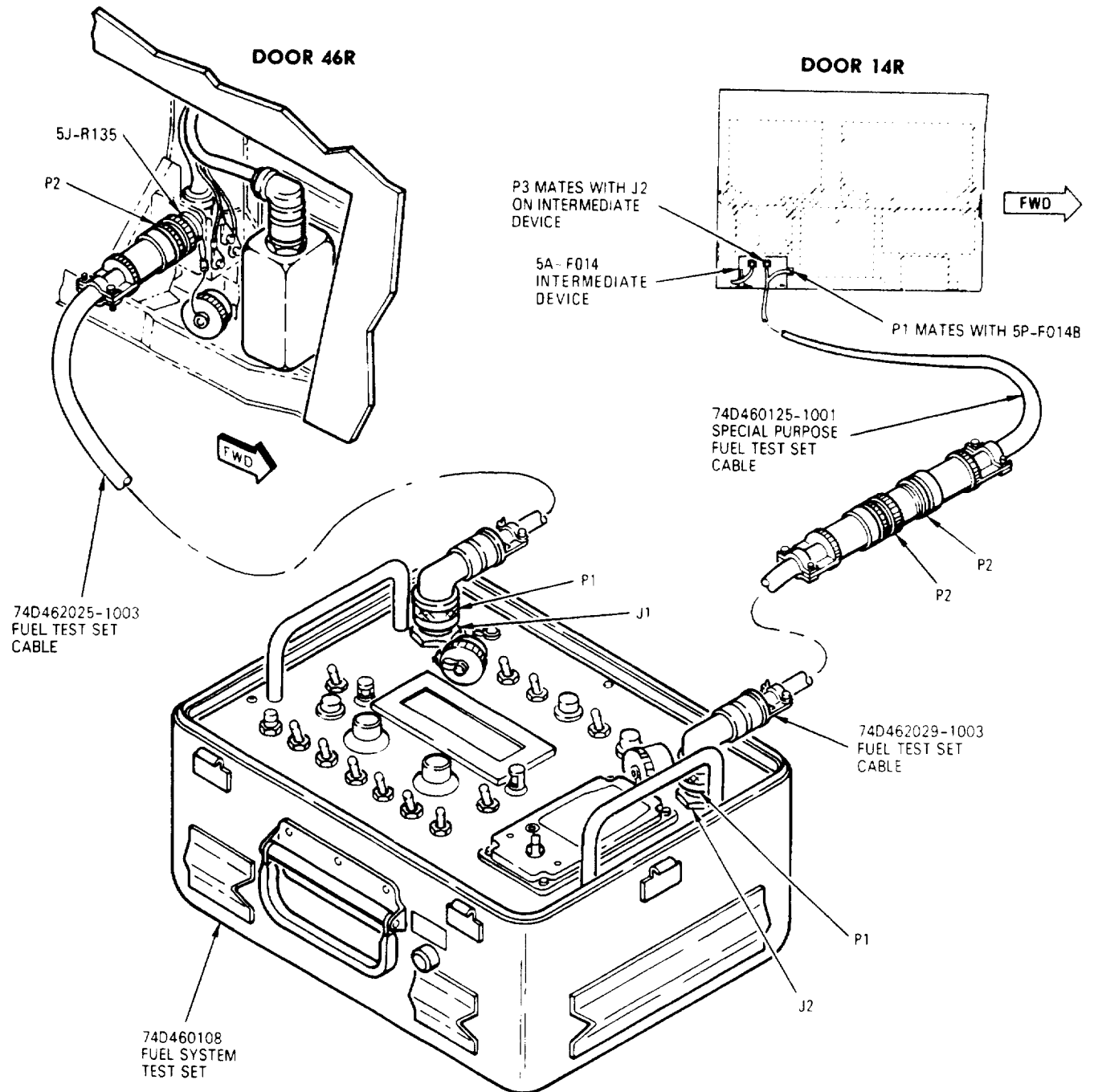
Procedure	Normal Indication	Remedy for Abnormal Indication
<div>WARNING</div> <p>To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p> <p>f. On the vertical stabilizer, monitor the vent outlets. If fuel spills from the outlets, do substeps below:</p> <p>(1) Shut down engines (A1-F18AC-LMM-000).</p> <p>(2) Tell fire department and take required action to make area safe.</p> <div>CAUTION</div> <p>The Left Digital Display Indicator IP-1317() must be monitored for L or R AMAD and L or R FUEL HOT cautions during this test. If either caution comes on, the engines must be shutdown.</p> <div>NOTE</div> <p>After starting the left and right engine, the fuel flow to each engine may require adjustment.</p>		
<p>g. Do substeps below:</p> <p>(1) Record the time when engines are started.</p> <p>(2) Record the left and right engine fuel inlet temperature (FIT) every 2 minutes until test is complete.</p> <p>(3) Operate the left and right engines at ground IDLE (A1-F18AC-LMM-000). On the cockpit Crew Station Engine Monitor Indicator AEU-12/A, observe the L ENGINE FF and R ENGINE FF indicators (fig 4).</p>	<p>The fuel flow to each engine is 600 PPH.</p>	<p>Adjust the throttle setting as required to obtain the required fuel flow.</p>

Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
(4) Monitor cockpit left Digital Display Indicator IP-1317() for L or R FUEL HOT or AMAD cautions during test.		
<p style="text-align: center;">NOTE</p> <p>The time required for the wing fuel tanks to empty must be monitored. This time is based upon the starting fuel amount of 400 lb in each wing fuel tank. Engines operating at ground IDLE (600 PPH), switch S6 on test set to OPEN (damage control valve open) and switch on S7 test set to FUS.</p>		
h. Monitor LEFT and RIGHT counters to determine the time required for both wing fuel tanks to deplete to 50 pounds. Record required time. Allow both wing fuel tanks to empty and monitor D1 display.	D1 displays 3 PSI when wing tanks are transferring. The time required for both LEFT and RIGHT counters to indicate 50 pounds is less than 10 minutes. When wing tanks empty, D1 will display 0 PSI.	Do table 1, WP019 00.
<p style="text-align: center;">NOTE</p> <p>The time required for the wing fuel tanks to fill to 400 lb must be monitored.</p>		
<p>i. Do substeps below:</p> <p>(1) On test set, set switches as listed below:</p> <p style="margin-left: 40px;">S1 - LEFT FEED S2 - RIGHT FEED S6 - CLOSED S7 - WING</p> <p>(2) On cockpit FUEL QTY indicator, monitor LEFT and RIGHT counters to determine when both left and right wing fuel tanks fill to 400 lb each. Record time when wing tanks start to fill.</p>	<p>1. The time required for counters to increase from 0 to 400 lb is 11 1/2 to 12 1/2 minutes (engines operating at ground IDLE). Left and right fuel inlet temperatures (FIT) are increasing simultaneously $\pm 2^{\circ}\text{C}$.</p> <p>2. On fuel system test set, D2 displays approximately 6 PSI (verifying right engine fuel boost ejector or turbine boost pump and tank 3 wash filter is not clogged or damaged).</p>	<p>Clean heat exchangers wash filter (A1-F18AC-460-300, WP138 01) on side that fuel amount increased slow and FIT temperature is cooler. Repeat test. If malfunction still exists, remove heat exchangers wash filter (A1-F18AC-460-300, WP138 01) again and inspect for clog. If filter is clean; reinstall filters and do table 1, WP016 00.</p> <p>Remove right engine fuel boost jet ejector or turbine boost pump (A1-F18AC-460-300, WP134 00) and tank 3 wash filter (A1-F18AC-460-300, WP132 00). Inspect ejector or pump and wash filter; clean or replace as required.</p>

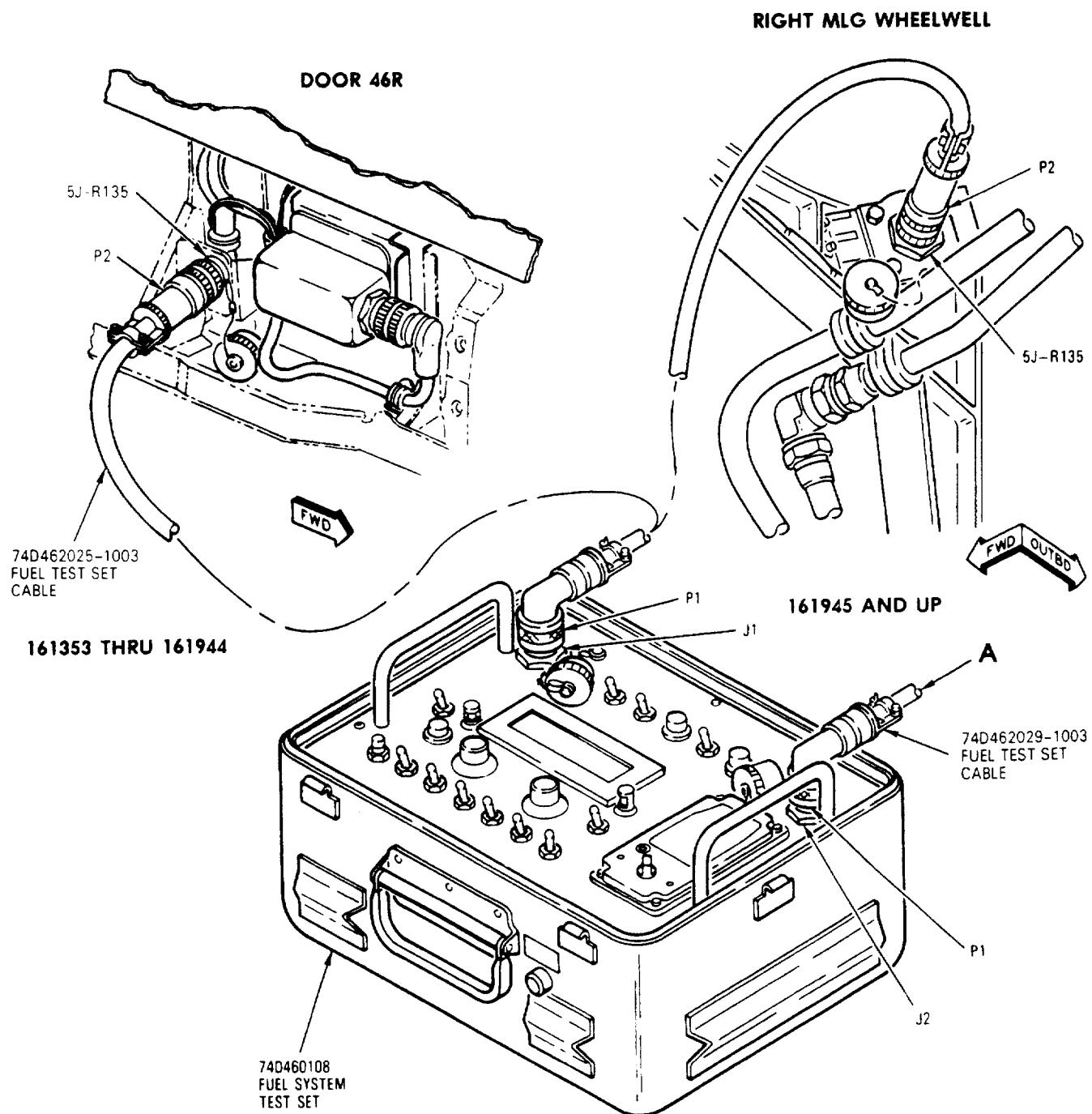
Table 1. Hot Fuel Recirculation System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>j. Shut down engines (A1-F18AC-LMM-000).</p> <p>6. FINAL.</p> <p>a. Turn off cockpit Digital Display Indicator IP-1317() (A1-F18AC-LMM-000).</p> <p>b. Remove external electrical power (A1-F18AC-LMM-00).</p> <p>c. On no. 8 circuit breaker/relay panel assembly, close the FUEL LOW LVL WRN circuit breaker (fig 4).</p> <p>d. Disconnect fuel system test set (fig 1).</p> <p>e. Close door 10L and, if applicable door 46R (A1-F18AC-LMM-010).</p> <p>f. If external fuel tanks are installed; on FUEL system control panel, set EXT TKS WING and CTR switches to NORM (fig 4).</p>	<p>3. On fuel system test set, D1 displays approximately 6 PSI (verifying left engine fuel boost ejector or turbine boost pump and tank 2 wash filter is not clogged or damaged).</p>	<p>Remove right engine fuel boost jet ejector or turbine boost pump (A1-F18AC-460-300, WP133 00) and tank 2 wash filter (A1-F18AC-460-300). Inspect ejector or pump and wash filter; clean or replace as required.</p>

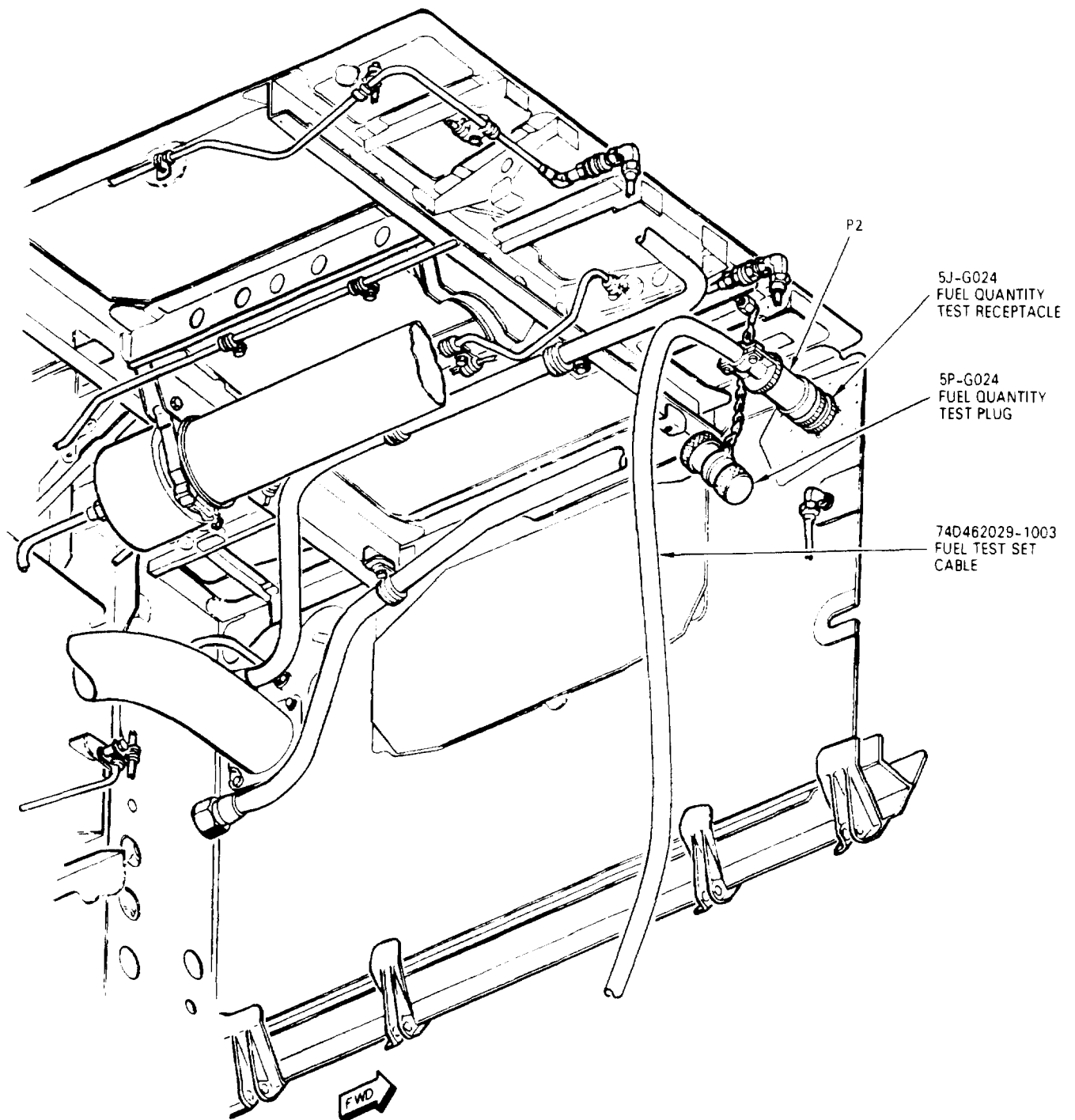


015001

Figure 1. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53



**Figure 2. Fuel System Test Set Hookup, 161350 AND UP; ALSO 161353 THRU 161359
AFTER F/A-18 AFC 53 (Sheet 1 of 2)**

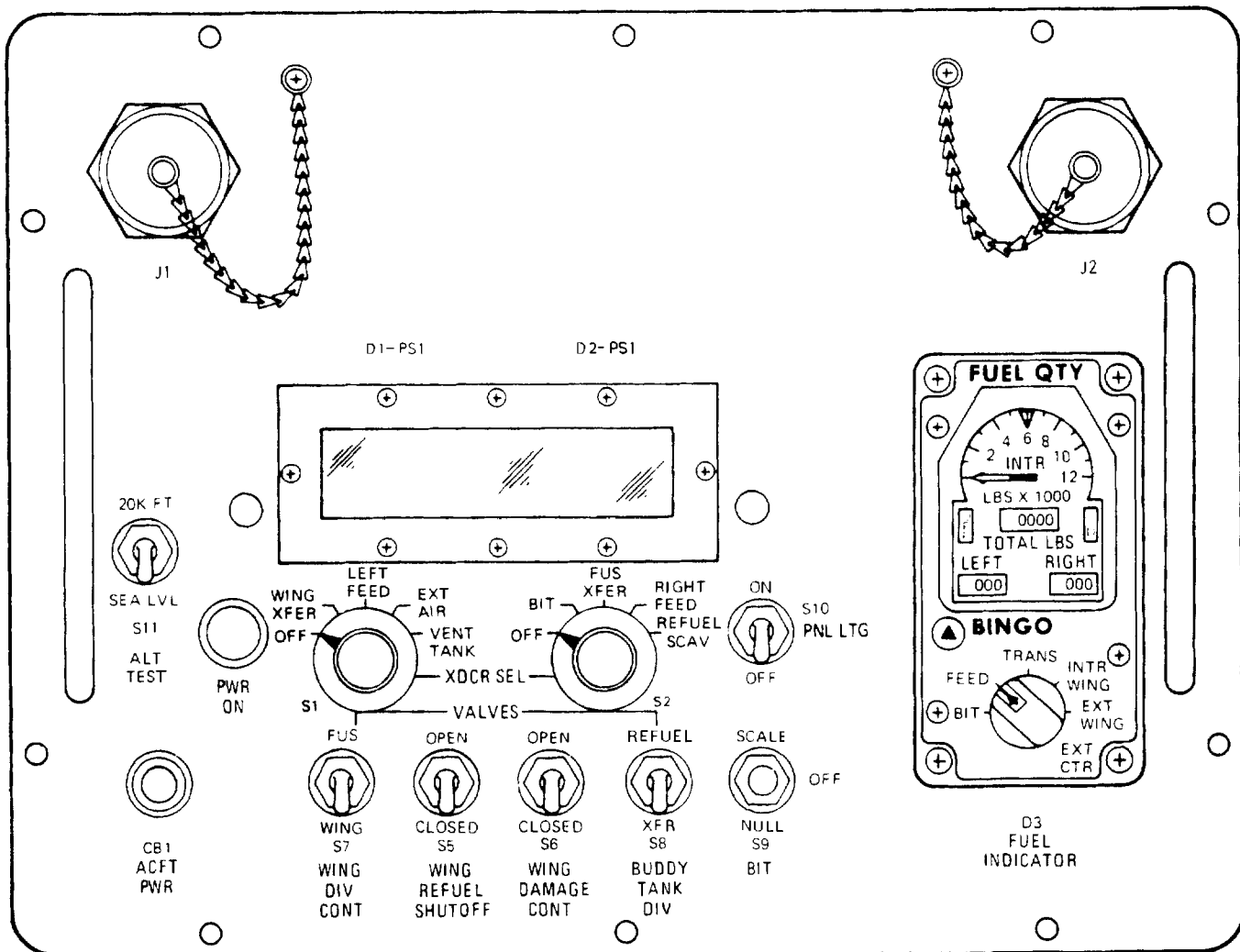


A

NOSE WHEELWELL, LEFT SIDE

01500202

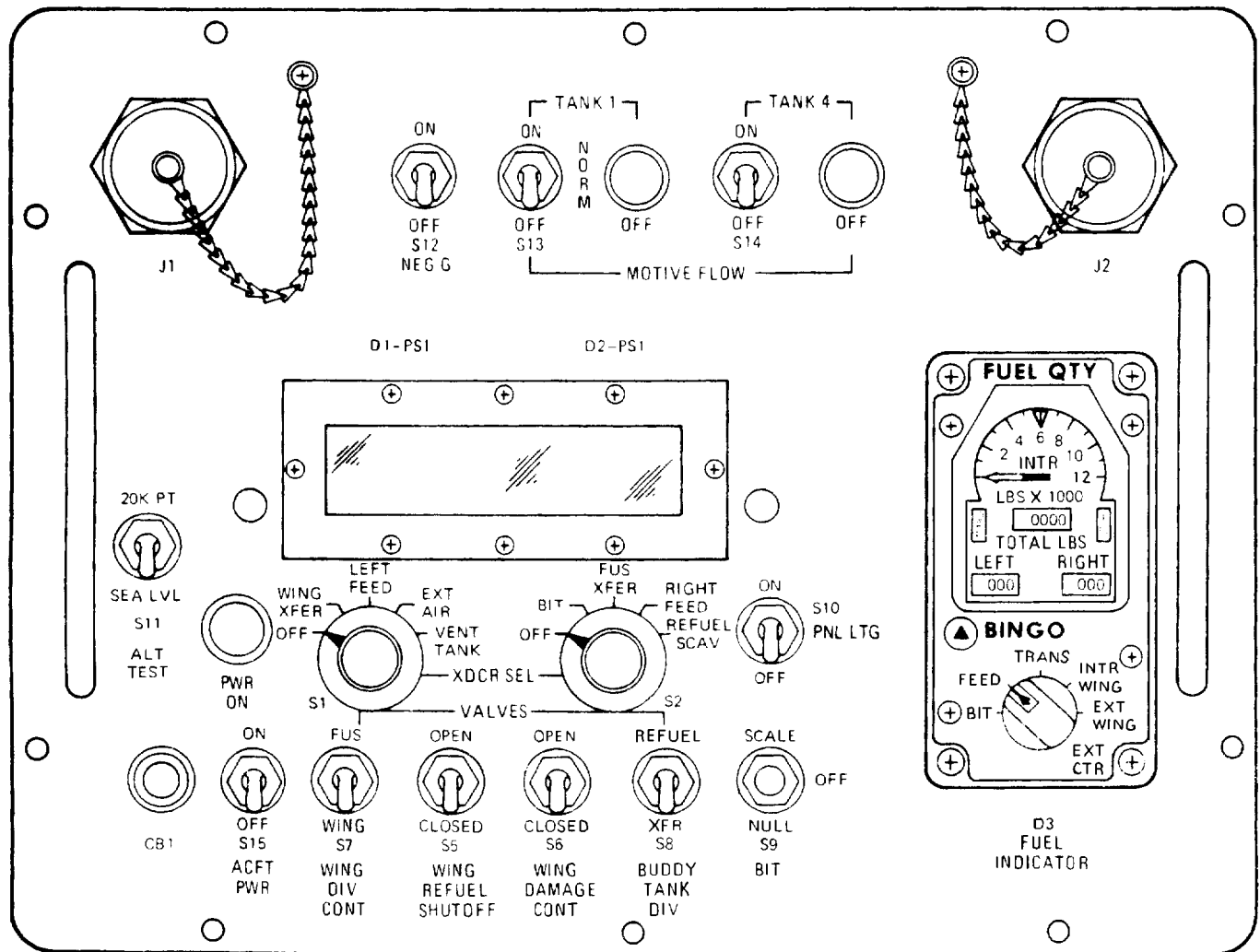
Figure 2. Fuel System Test Set Hookup, 161350 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

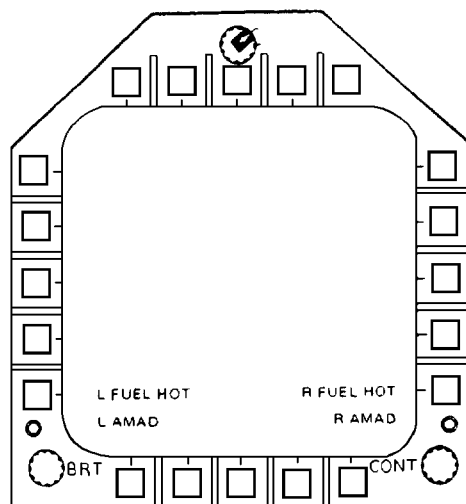
Figure 3. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



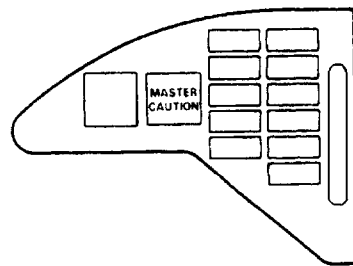
FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 3. Fuel System Test Set Controls and Displays (Sheet 2)



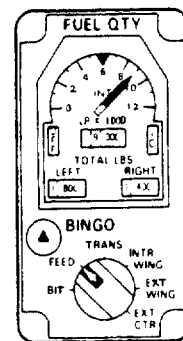
LEFT DIGITAL DISPLAY
INDICATOR IP-1317()



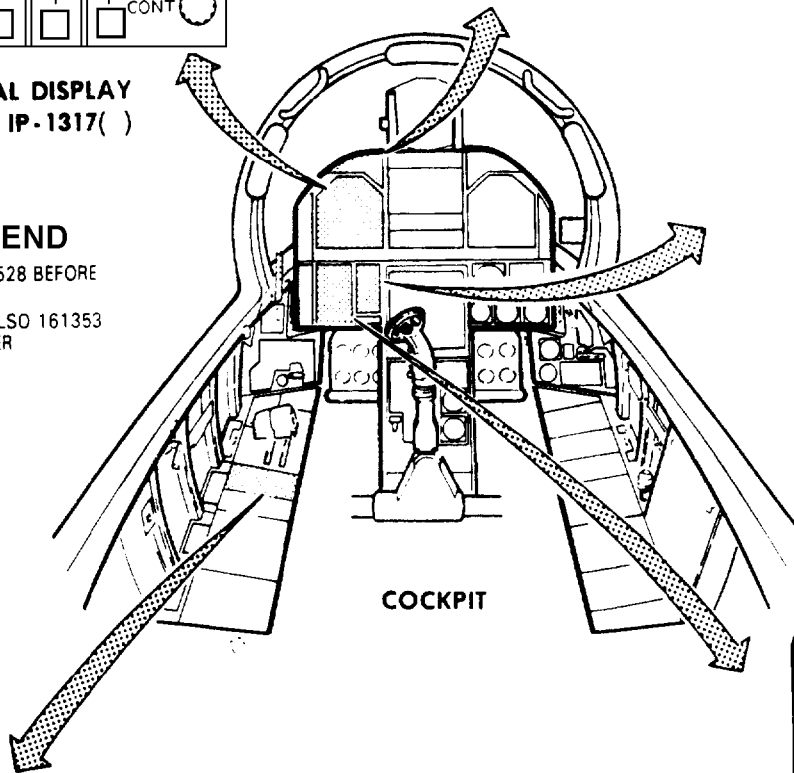
LH ADVISORY AND THREAT
WARNING INDICATOR PANEL

LEGEND

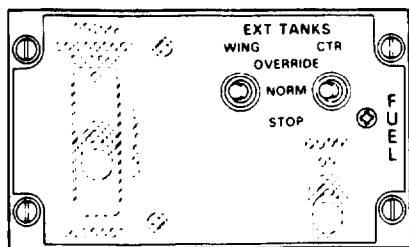
- 1 161353 THRU 161528 BEFORE
F/A-18 AFC 41
- 2 161702 AND UP ALSO 161353
THRU 161528 AFTER
F/A-18 AFC 41



FUEL QTY INDICATOR

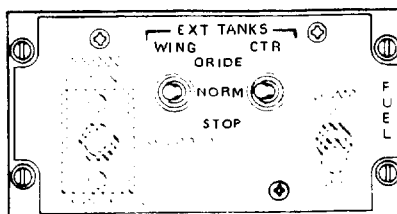


COCKPIT

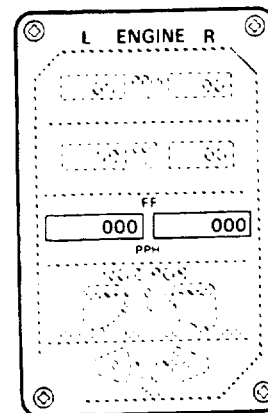


1

2

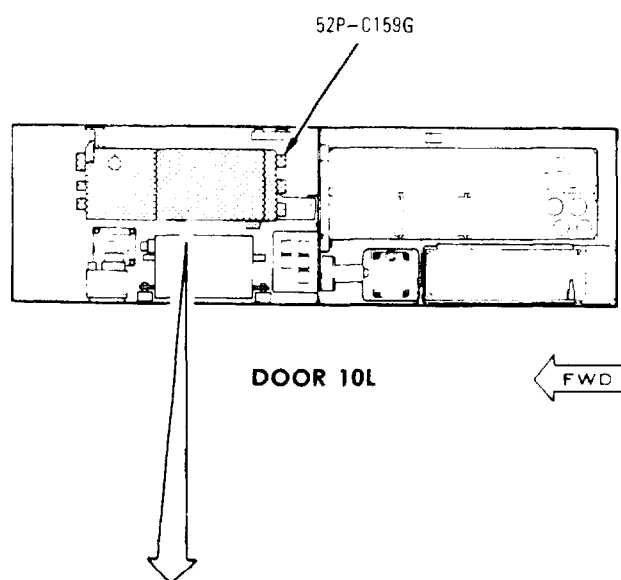


FUEL SYSTEM CONTROL PANEL



CREW STATION ENGINE
MONITOR INDICATOR

Figure 4. Hot Fuel Recirculation System Test Component Locator (Sheet 1 of 2)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A5	5CBC050	FUEL LOW LVL WRN	L 28VDC

Figure 4. Hot Fuel Recirculation System Test Component Locator (Sheet 2)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
HOT FUEL RECIRCULATION SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Code 658 and No Code 674, Table 2	4
Code 674 and No Code 658, Table 3	6
Wing Fuel Tanks Increase Slow, Table 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Oct 86	—

Table 1. Wing Fuel Tanks Increase Slow**Support Equipment Required****NOTE**

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

260-6XLP
(AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP010 00) may be used while doing this procedure.

For component location, refer to figure 1, WP017 00.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
AMAD Oil/Fuel Heat Exchanger
Fuel/Air Heat Exchanger
Fuel Diverter Valve
Hot Fuel Recirculation Restrictor Tube
Hot Fuel Recirculation Wing Restrictor
Hydraulic Oil/Fuel Heat Exchanger
Wing Damage Fuel Shutoff Valve

Procedure**No****Yes**

To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.

NOTE

The question used in logic tree “Does continuity exist?” means to test for the items listed below:

1. Pin to pin test per procedural step.
2. Shorts to ground.
3. Shorts between surrounding pins on connectors.
4. Shorts between shield and conductors.
5. Shield continuity.

Table 1. Wing Fuel Tanks Increase Slow (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Shut down engines (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000) and do step h.		
(3) Remove door 40 (A1-F18AC-LMM-010).		
(4) Disconnect 5P-R120.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 5P-R120 pin 13 and a ground at pins 11 and 12	b	c
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step h	-	-
c. Does 28vdc exist at 5P-R120 pin 7 and a ground at pins 5 and 6?	b	d
d. Does 28vdc exist at 5P-R120 pin 10 and a ground at pins 8 and 9?	b	e
e. Did both wing fuel tanks increase at a slow rate?	f	g
f. Malfunction is caused by obstruction of one of the items on the side that increased slow. Remove, inspect, reinstall or replace as required, and do step h.		
(1) Hydraulic oil/fuel heat exchanger (A1-F18AC-450-300, WP009 00).		
(2) AMAD oil/fuel heat exchanger (A1-F18AC-240-300, WP022 00).		
(3) On 161520 AND UP, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 53, fuel/air heat exchanger (A1-F18AC-460-300, WP144 02).		
(4) On 161353 THRU 161519 BEFORE F/A-18 AFC 53, the hot fuel recirculation wing restrictor (A1-F18AC-460-300, WP144 01).		
(5) Hot fuel recirculation restrictor tube (A1-F18AC-460-300, WP144 01)	-	-
g. Replace the wing damage fuel shutoff valve (A1-F18AC-460-300, WP122 00) and do step h	-	-
h. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connector 5P-R120		
(2) Door 40	-	-

Table 2. Code 658 and No Code 674

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP010 00) may be used as an aid when doing this procedure.		
For component locator, refer to A1-F18AC-460-500, WP010 00.		
Malfunction is caused by one of the items below:		
Aircraft Wiring Left Fuel Feed Line Temperature Sensor		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Does code 943 exist?	c	b
b. Do troubleshooting procedure (WP026 00)	-	-

Table 2. Code 658 and No Code 674 (Continued)

Procedure	No	Yes
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 53L (A1-F18AC-LMM-010).		
(3) Disconnect 5A-P111-P1 from 5J-P111.		
(4) Open door 32R (A1-F18AC-LMM-010).		
(5) Disconnect 85P-N002B from Signal Data Converter CV-3493/ASM-612.		
(6) Does continuity exist from:		
5J-P111 pin A to 85P-N002B pin 8		
5J-P111 pin B to 85P-N002B pin 9?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
e. Do substeps below:		
(1) Replace left fuel feed line temperature sensor (A1-F18AC-460-300, WP137 00).		
(2) Set up cockpit left Digital Display Indicator IP-1317/A for displays (A1-F18AC-LMM-000).		
(3) Monitor left fuel inlet temperature (FIT). If FIT is still erratic, Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Door 53L		
(2) 5A-P111-P1		
(3) Door 32R		
(4) 85P-N002B	-	-

Table 3. Code 674 and No Code 658

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Hot Fuel Recirculation System Schematic (A1-F18AC-460-500, WP010 00) may be used as an aid when doing this procedure.		
For component locator, refer to A1-F18AC-460-500, WP010 00.		
Malfunction is caused by one of the items below:		
Aircraft Wiring Right Fuel Feed Line Temperature Sensor		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Does code 942 exist?	c	b
b. Do troubleshooting procedure (WP025 00)	-	-

Table 3. Code 674 and No Code 658 (Continued)

Procedure	No	Yes
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 53R (A1-F18AC-LMM-010).		
(3) Disconnect 5A-R112-P1 from 5J-R112.		
(4) Open door 32R (A1-F18AC-LMM-010).		
(5) Disconnect 85P-N002B from Signal Data Converter CV-3493/ASM-612.		
(6) Does continuity exist from:		
5J-R112 pin A to 85P-N002B pin 10		
5J-R112 pin B to 85P-N002B pin 11?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
e. Do substeps below:		
(1) Replace right fuel feed line temperature sensor (A1-F18AC-460-300, WP137 00).		
(2) Set up cockpit left Digital Display Indicator IP-1317/A for displays (A1-F18AC-LMM-000).		
(3) Monitor right fuel inlet temperature (FIT). If FIT is still erratic, Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200,WP003 00) and do step f	-	-
f. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Door 63R		
(2) 5A-R112-P1		
(3) Door 32R		
(4) 85P-N002B	-	-

THIS PAGE INTENTIONALLY LEFT BLANK.

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
HOT FUEL RECIRCULATION SYSTEM**

Reference Material

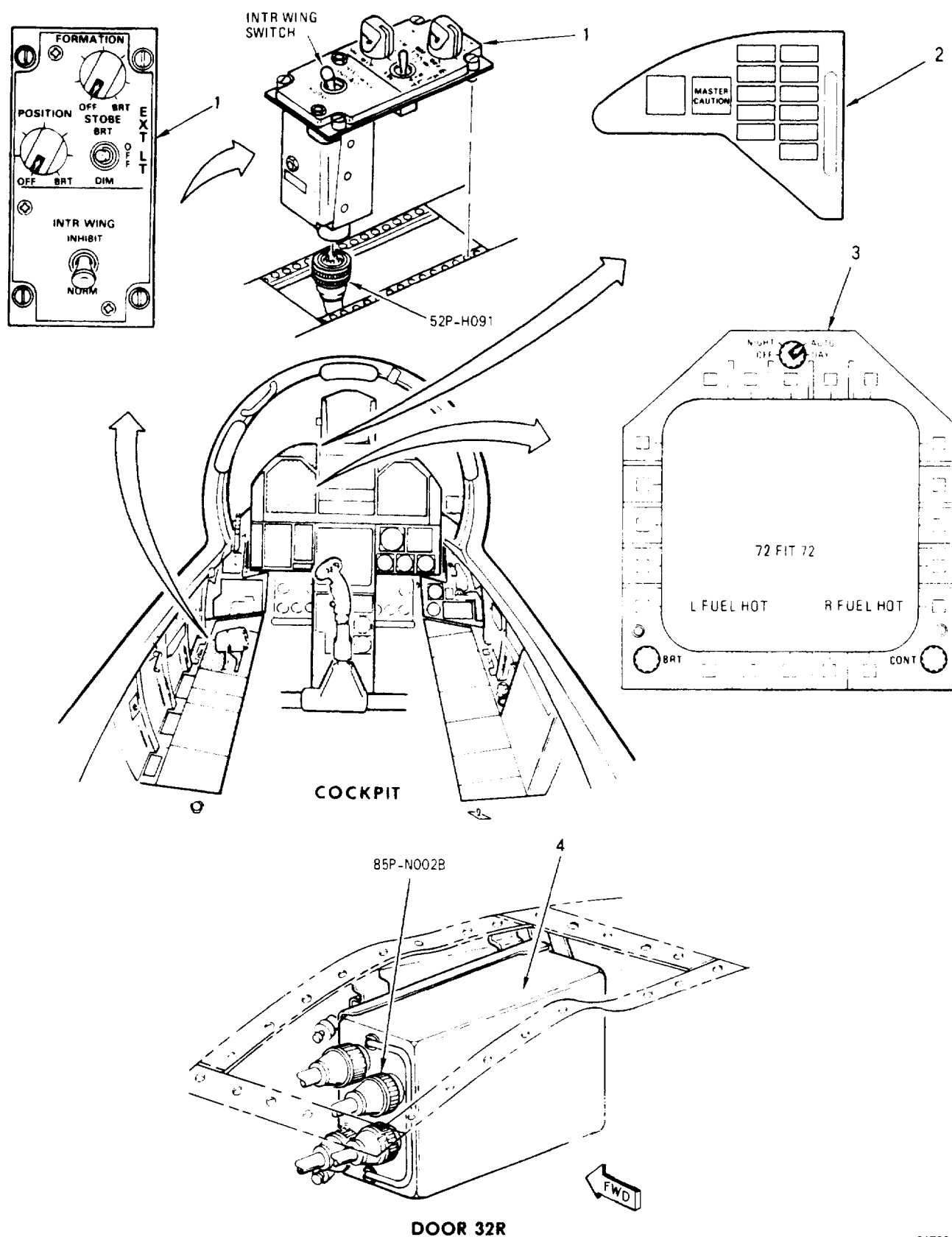
None

Alphabetical Index

Subject	Page No.
Hot Fuel Recirculation System Component Locator, Figure 1	2

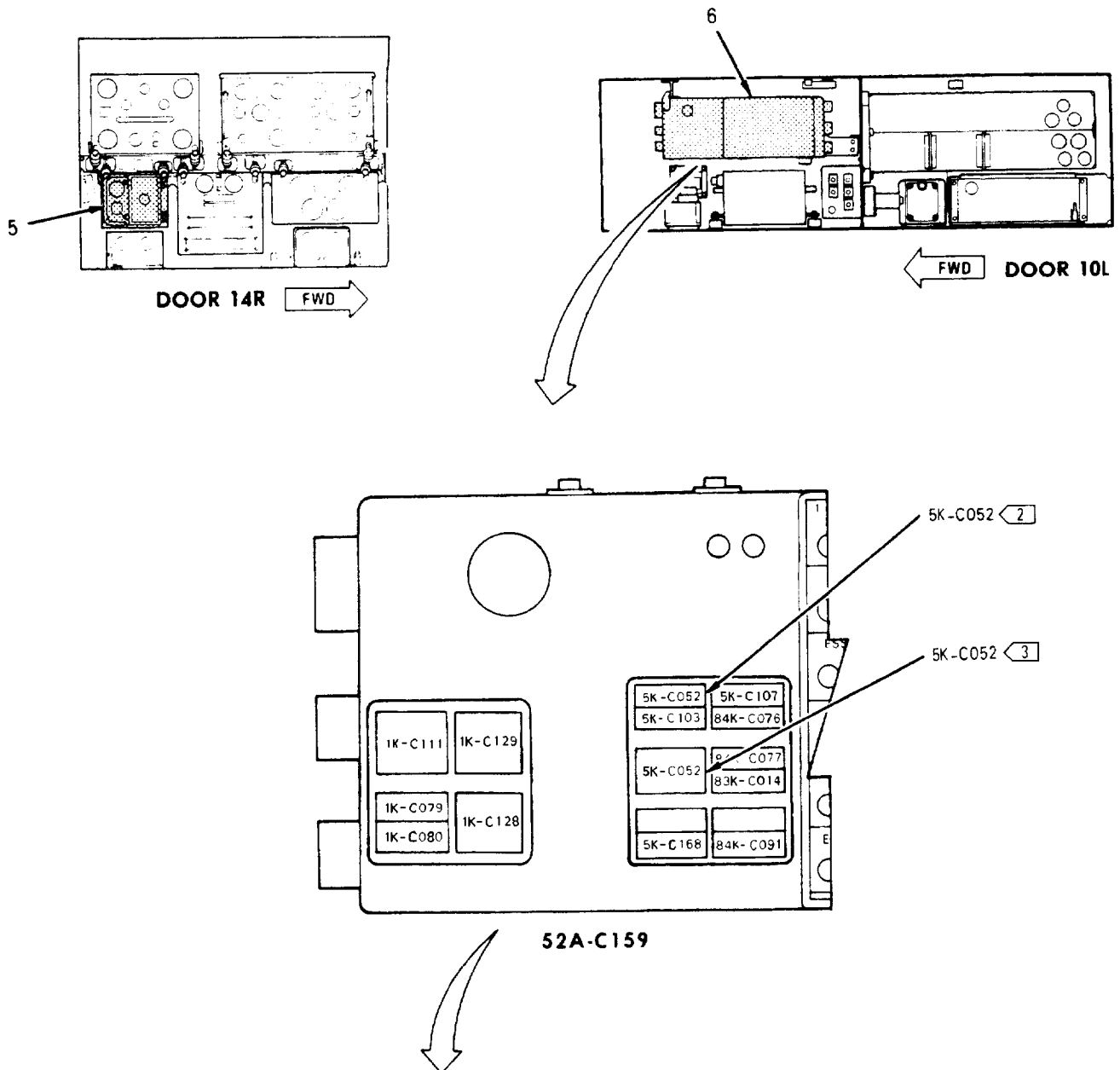
Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 21	—	Addition of Fuel/Air Heat Exchanger (ECP MDA-F/A-18-00033)	1 Jul 86	—
F/A-18 AFC 18	—	Incorporation of Fuel Turbine Boost Pump/ Sealing of Raised Baffle in Fuel Tanks 2 and 3 (ECP MDA-F/A-18-00077C1/C2)	1 Dec 86	—



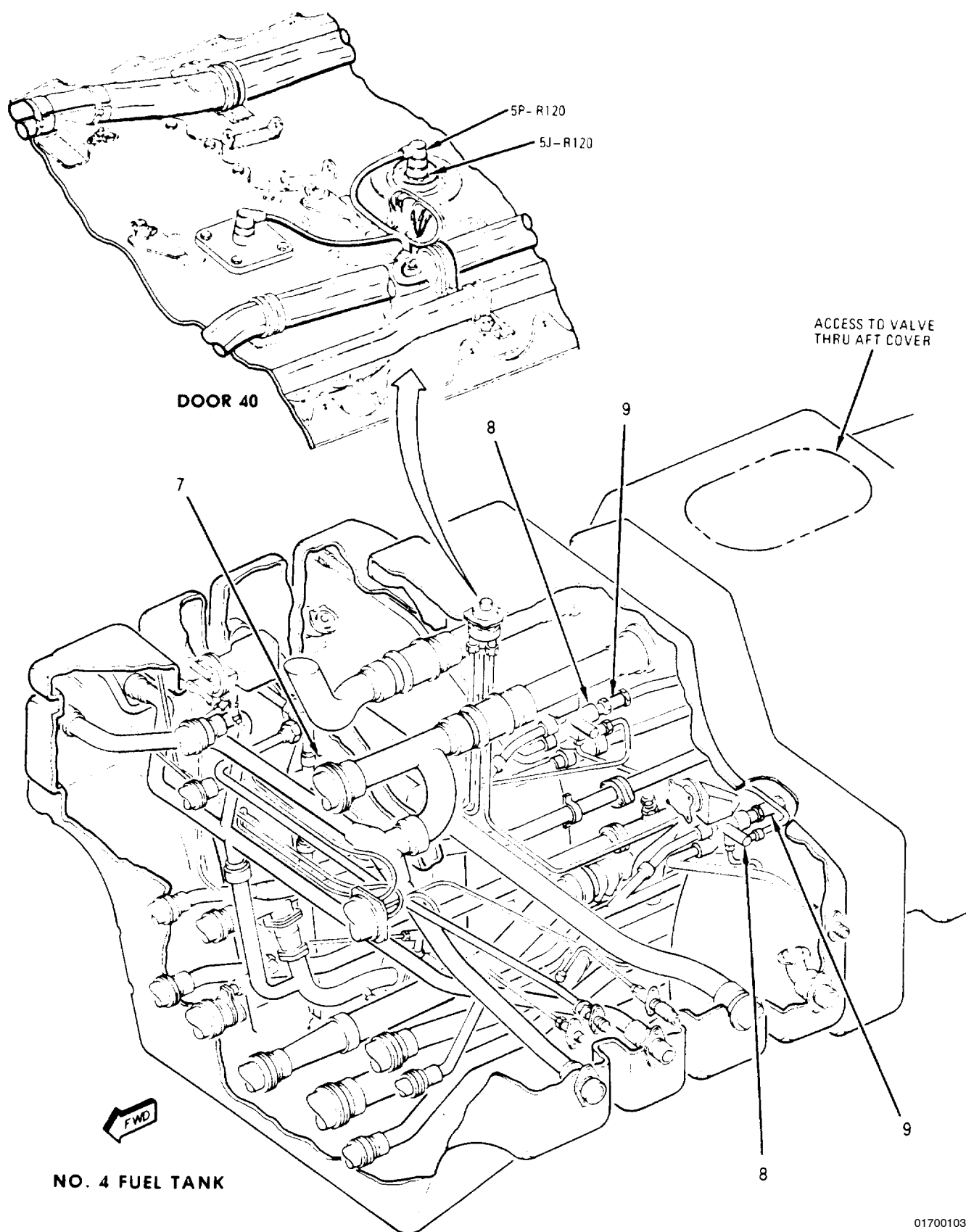
01700101

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 1 of 9)



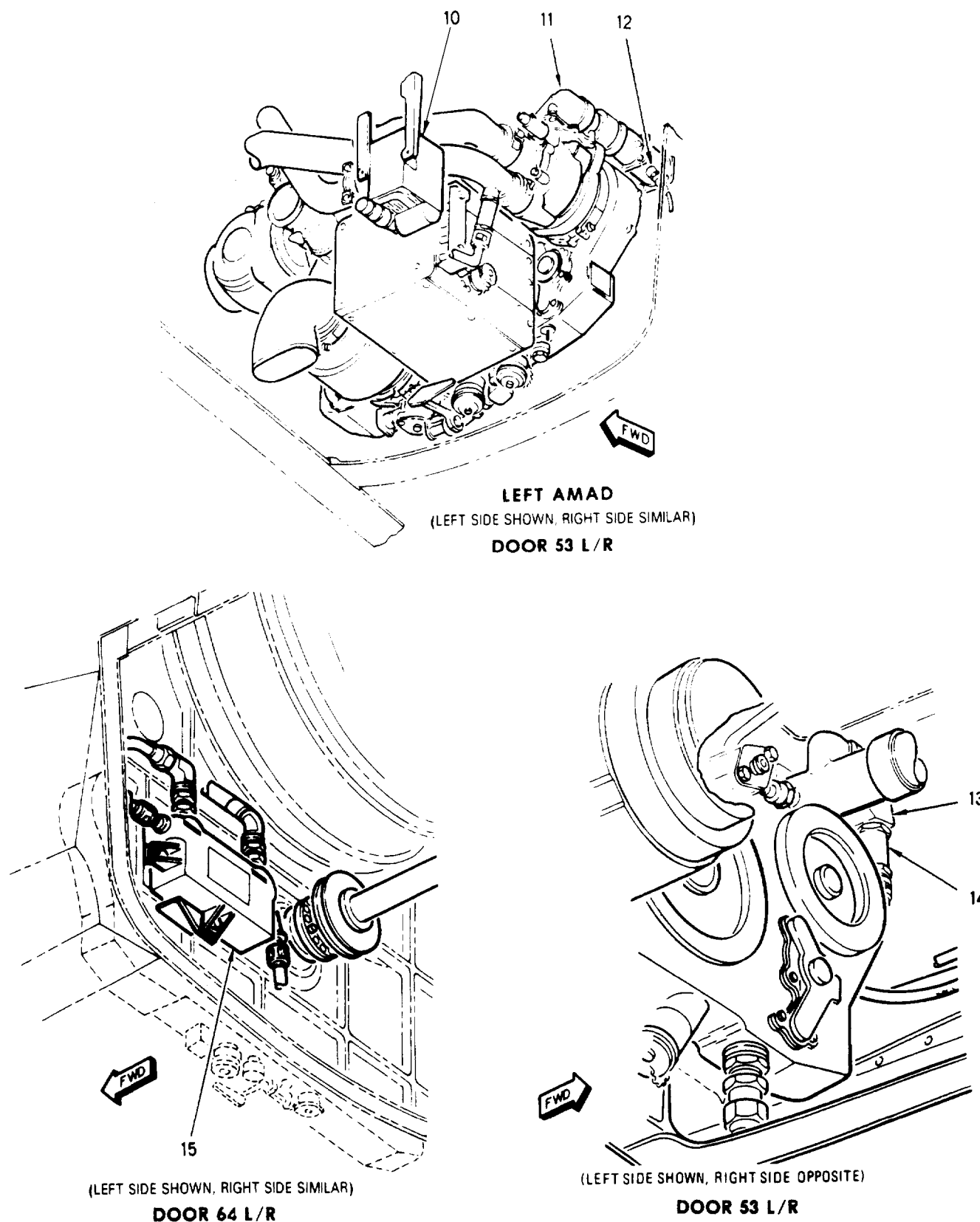
52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A7	5CBC115 5K-C052	WING FUEL FUEL LOW LEVEL RELAY NO. 2	L28VDC

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 2)



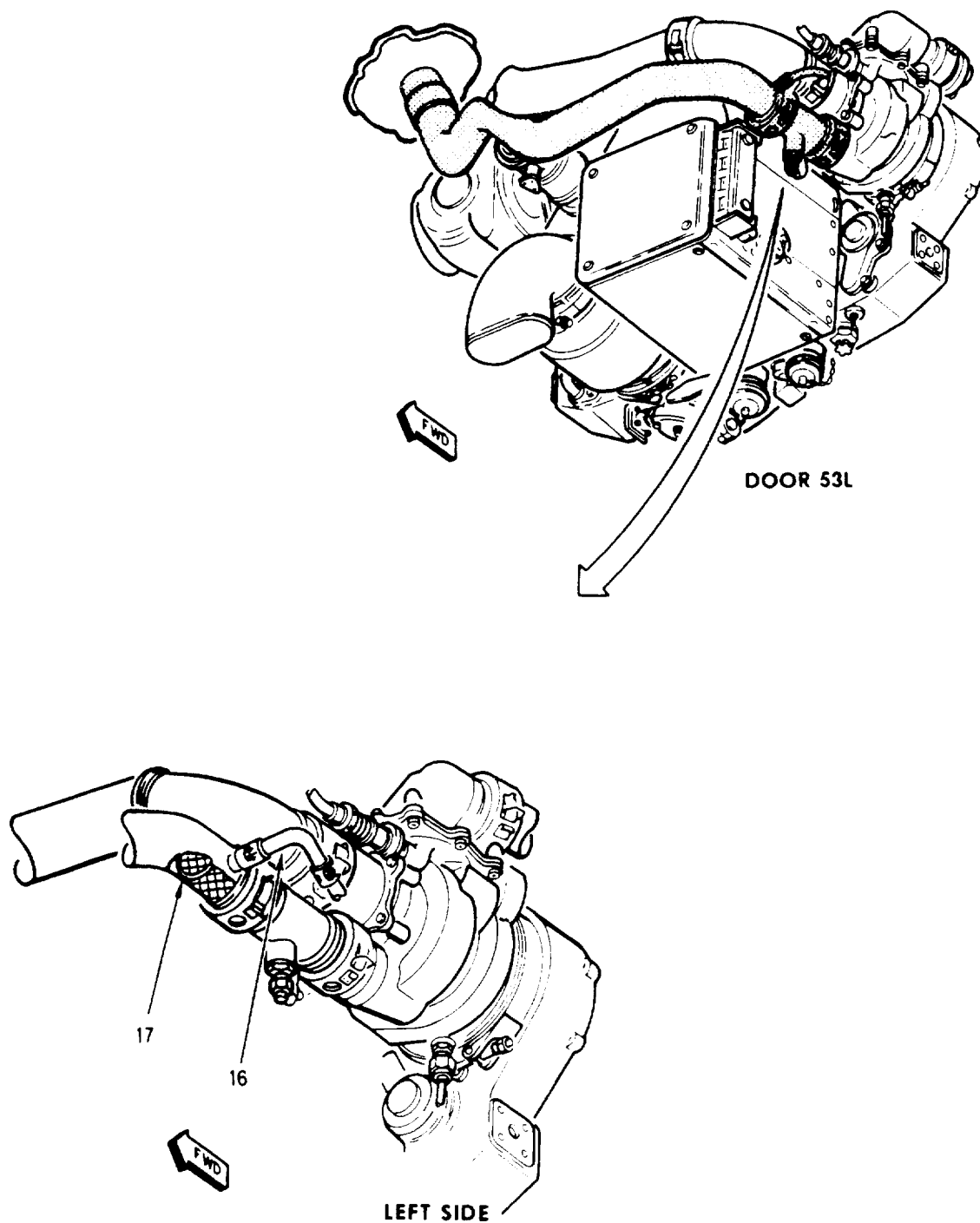
01700103

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 3)



01700104

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 4)



01700105

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 5)

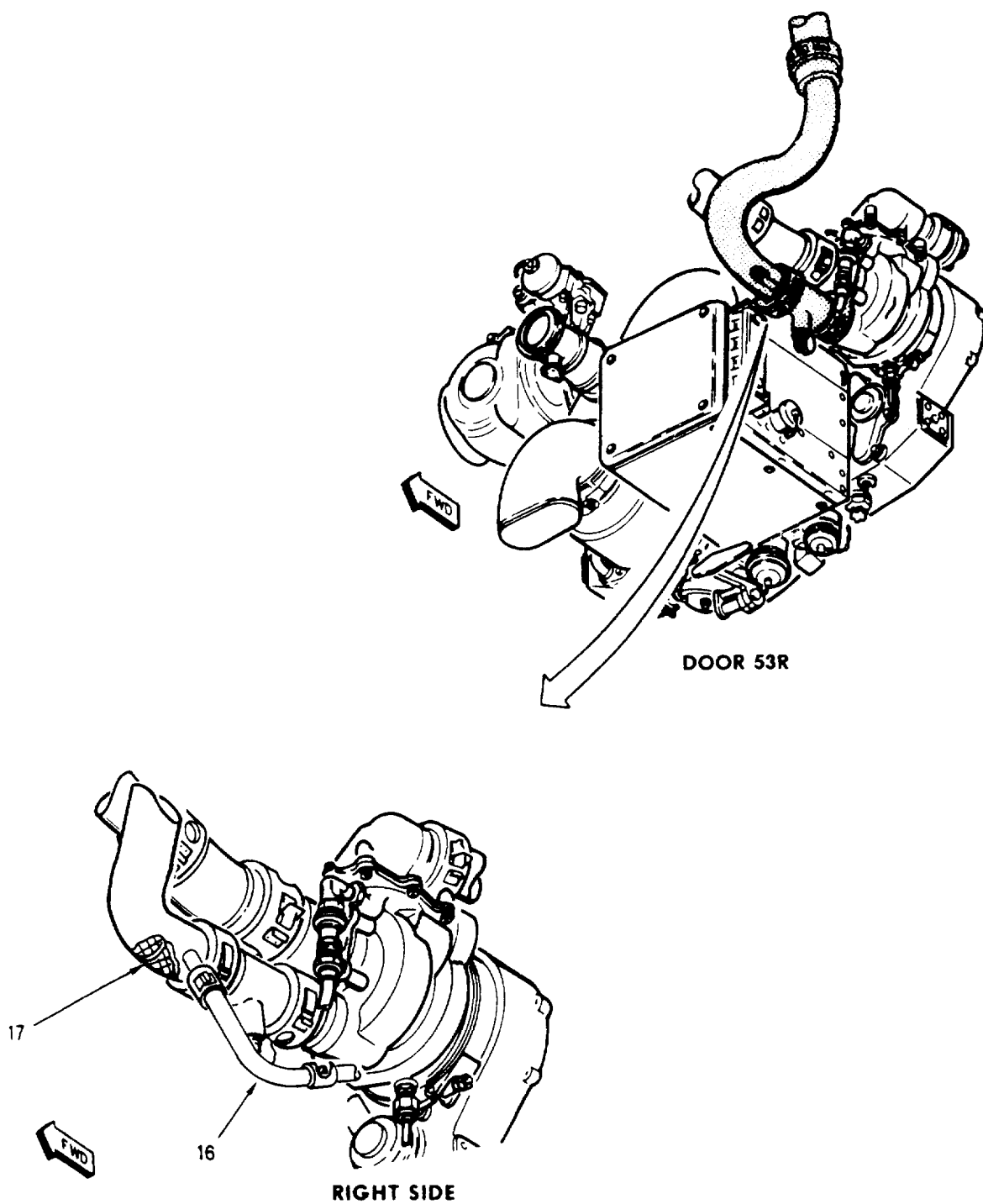


Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 6)

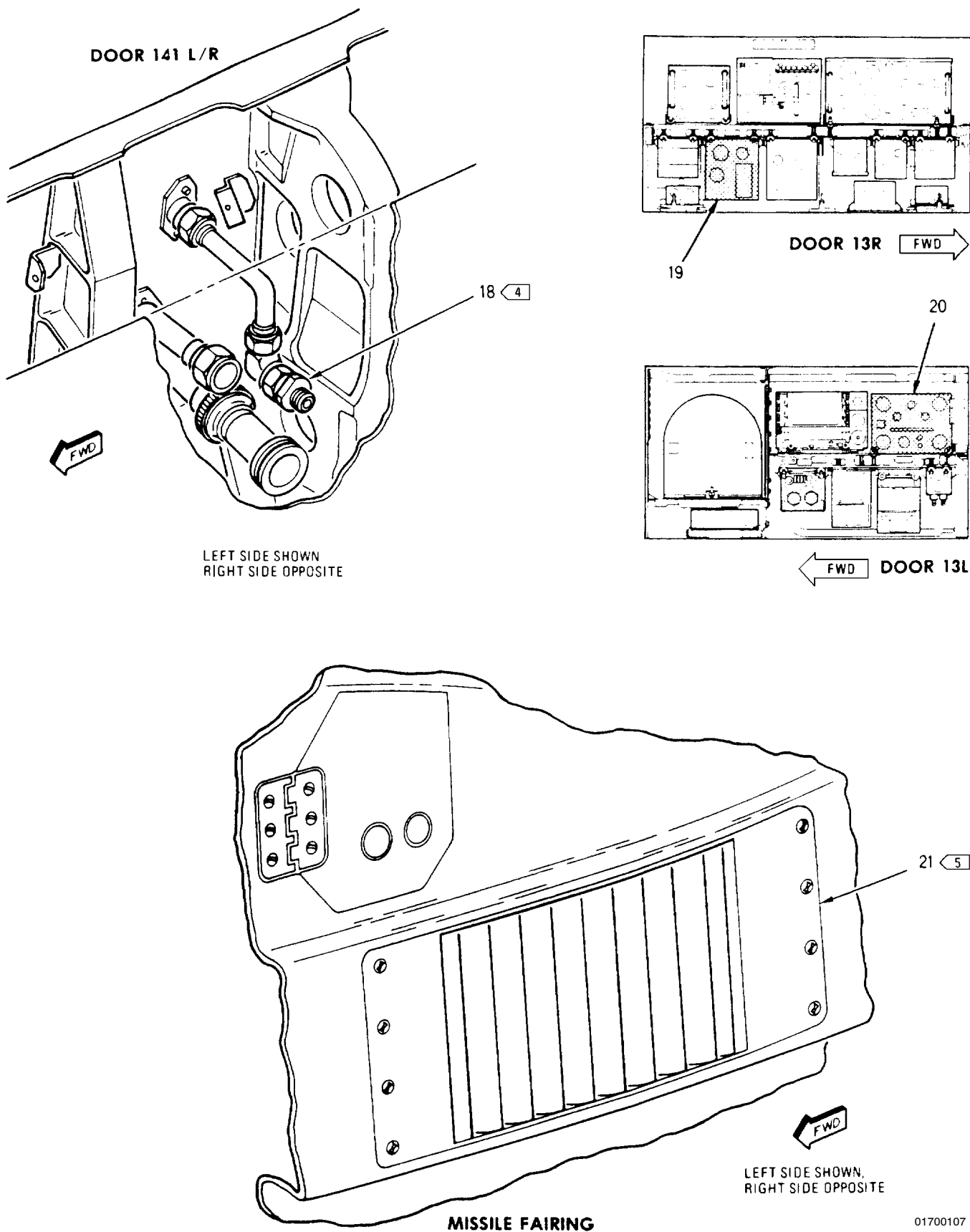


Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 7)

Nomenclature	Index No.	Ref Des
AMAD OIL/FUEL HEAT EXCHANGER LEFT RIGHT	15	3HPS530 3HPT532
CONTROL CONVERTER C-10382/A	19	82A-F001
CROSSFEED MANIFOLD	13	
DIGITAL DATA COMPUTER NO. 1	20	83A-E001
EXT LT CONTROL PANEL ASSEMBLY INTR WING SWITCH	1	52A-H091 5S-H026
5 FUEL/AIR HEAT EXCHANGER LEFT RIGHT	21	5MPP670 5MP671
FUEL DIVERTER VALVE LEFT RIGHT	8	5L-R118 5L-R119
FUEL/OIL HEAT EXCHANGER CHECK VALVE LEFT RIGHT	14	5VAS523 5VAT524
FUEL TEMPERATURE SENSOR LEFT RIGHT	12	5A-P111 5A-R112
HEAT EXCHANGERS WASH FILTER (INTEGRAL PART OF TUBE) LEFT RIGHT	17	5FAP647 5FAR648
HOT FUEL RECIRCULATION CHECK VALVE LEFT RIGHT	9	5VAP585 5VAR584
HOT FUEL RECIRCULATION RESTRICTOR (INTEGRAL PART OF TUBE) LEFT RIGHT	16	5RAP655 5RAR656
4 HOT FUEL RECIRCULATION WING RESTRICTOR LEFT RIGHT	18	5RAP657 5RAR658
HYDRAULIC OIL/FUEL HEAT EXCHANGER LEFT RIGHT	10	10HPP518 10HPR519
LEFT ADVISORY AND THREAT WARNING INDICATOR PANEL	2	52A-H073

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 8)

Nomenclature	Index No.	Ref Des
LEFT DIGITAL DISPLAY INDICATOR IP-1317()	3	80A-H001
MOTIVE FLOW BOOST PUMP	11	5BAS515
LEFT		5VAT514
RIGHT		
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	6	52A-C159
SIGNAL DATA CONVERTER CV-3494/ASM-612	4	85A-N002
SIGNAL DATA RECORDER RO-508/ASM-612	5	85A-F001
WING DAMAGE FUEL SHUTOFF VALVE	7	5L-R110
<p style="text-align: center;">LEGEND</p> <p>1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.</p> <p>2 161353 THRU 161519.</p> <p>3 161520 AND UP.</p> <p>4 161353 THRU 161519, BEFORE F/A-18 AFC 18.</p> <p>5 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 21.</p>		

Figure 1. Hot Fuel Recirculation System Component Locator (Sheet 9)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST
WING FUEL TRANSFER SYSTEM

Reference Material

Plane Captain Manual	A1-F18AC-PCM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Wiring Diagrams	A1-F18A()-WDM-000

Alphabetical Index

Subject	Page No.
Fuel System Test Set Controls and Displays, Figure 3	13
Fuel System Test Set Hookup - 161353 THRU 161359 BEFORE F/A-18 AFC 53, Figure 1	10
Fuel System Test Set Hookup - 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, Figure 2	11
Wing Tank Fuel Transfer System Test Component Locator, Figure 4	15
Wing Tank Fuel Transfer System Test, Table 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle. (ECP MDA-F/A-18-00055/C1)	1 Jul 86	—

NOTE

Internal Fuel Transfer System Schematic
(A1-F18AC-460-500, WP007 00) may be used
while doing this test.

Table 1. Wing Tank Fuel Transfer System Test

Procedure	Normal Indication	Remedy for Abnormal Indication												
<div>System Required Components</div> <div>All system components installed.</div> <div>Related Systems Required</div> <div>Electrical System Power Plant and Related Systems Secondary Power Systems</div> <div>Support Equipment Required</div> <div>NOTE</div> <div>Alternate item type designations or part numbers are listed in parentheses.</div> <table><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr><tr><td>74D460108-1001</td><td>Fuel System Test Set</td></tr><tr><td>74D460108-1003</td><td>Fuel System Test Set</td></tr><tr><td>74D460125-1001</td><td>Special Purpose Fuel Test Set Cable</td></tr><tr><td>(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))</td><td></td></tr><tr><td>—</td><td>External Electrical Power Source</td></tr></table> <div>Materials Required</div> <div>None</div>			Part Number or Type Designation	Nomenclature	74D460108-1001	Fuel System Test Set	74D460108-1003	Fuel System Test Set	74D460125-1001	Special Purpose Fuel Test Set Cable	(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))		—	External Electrical Power Source
Part Number or Type Designation	Nomenclature													
74D460108-1001	Fuel System Test Set													
74D460108-1003	Fuel System Test Set													
74D460125-1001	Special Purpose Fuel Test Set Cable													
(161353 THRU 161359 BEFORE F/A-18 AFC 53 (LAND BASE ONLY))														
—	External Electrical Power Source													
1. PREPARATION.														
<div>NOTE</div> <div>To test the wing tank fuel transfer rate, each wing tank must be 400 lb. To allow space for wing tanks to transfer fuel, the total INTR fuel amount should be 8000 lb maximum.</div>														
a. If external fuel tanks are installed; on cockpit FUEL system control panel, set EXT TANKS WING and CTR switches to STOP (fig 4).														
b. On the cockpit FUEL QTY indicator, set the FUEL QTY selector knob to INTR WING.														

Table 1. Wing Tank Fuel Transfer System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. On FUEL QTY indicator, if LEFT and RIGHT counters do not show internal wing tanks at 400 lb each and if total INTR fuel amount is more than 8000 lb, defuel aircraft to 3500 INTR lb (A1-F18AC-PCM-000).</p> <p>d. Refuel aircraft (A1-F18AC-PCM-000) until internal wing tanks are 400 lb each and total INTR is not more than 8000 lb.</p> <p>e. Open door 10L (A1-F18AC-LMM-010).</p> <p>f. Turn off electrical power (A1-F18AC-LMM-000).</p> <p>g. On no. 8 circuit breaker/relay panel assembly, open the FUEL LOW LVL WRN circuit breaker (door 10L).</p> <p>2. FUEL SYSTEM TEST SET HOOKUP.</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 1 or 2).</p> <p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p>		

Table 1. Wing Tank Fuel Transfer System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>Step below required to hookup test set FUEL QTY INDICATOR on aircraft without the fuel quantity test receptacle. This hookup requires opening avionics bay door 14R. Due to the EMI environment that exists on the carrier deck this hookup is limited to land based aircraft only.</p> <p>c. On 161353 THRU 161359 BEFORE F/A-18 AFC 53, carrier based aircraft FUEL QTY indicator must be monitored in the cockpit. On 161353 THRU 161359 BEFORE F/A-18 AFC 53 land based aircraft, hookup 74D460125-1001 and 74D462029-1003 test cables per sub-steps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On fuel system test set, remove J2 protective cap (fig 1).</p> <p>(3) Connect test cable 74D462029-1003 P1 to J2 on test set.</p> <p>(4) Connect test cable 74D460125-1001 P2 to 74D462029-1003 P2.</p> <p>(5) On fuel quantity intermediate device, (door 14R) disconnect 5P-F014B from J2.</p> <p>(6) Connect test cable 74D460125-1001 P1 to 5P-F014B.</p> <p>(7) On fuel quantity intermediate device, connect test cable P3 to J2.</p> <p>d. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 2).</p>		

Table 1. Wing Tank Fuel Transfer System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Connect test cable P1 to J2 on test set.</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>e. On fuel system test set (fig 3), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICA TOR- Selector knob to FEED</p> <p>f. On 74D460108-1003 test set, set switches per substep below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - ON S14 - ON S15 - OFF</p> <p>g. Observe red OFF and yellow ID flags on FUEL QTY INDICATOR.</p> <p>h. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>i. On test set, close CB1 circuit breaker.</p> <p>j. On 74D460108-1003 test set, set switch S15 to ON.</p>	<p>Off flag red and ID flag yellow.</p> <p>D1 and D2 displays all minus signs.</p>	<p>Replace test set.</p> <p>Do table 3, WP013 02.</p>

Table 1. Wing Tank Fuel Transfer System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
k. Observe red OFF and yellow ID flags on FUEL QTY indicator.	OFF flag black and ID flag black.	Replace test set.
l. Set and hold D3 FUEL INDICATOR selector knob to BIT and observe counters and needle.	Counters and needle do not hang up. Left counter moves to 550 to 650 lb. Right counter moves to 550 to 650 lb. TOTAL lb counter moves to 5800 to 6200 lb. INTR lb needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.	Turn off electrical power (A1-F18AC-LMM-000). Disconnect test cable P2 from fuel quantity test receptacle (nose wheelwell left side). Reconnect 5P-G024. Do Fuel Quantity Gaging and Low Level Warning System Test, Table 1, WP024 00. If aircraft passes test, replace test set.
m. Release D3 FUEL INDICATOR selector knob.	Selector knob returns to FEED, LEFT, RIGHT and TOTAL LBS counters return without stopping or jerking.	Replace test set.
3. TRANSDUCER CHANNEL BIT. (QA)		
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 3, WP013 02.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 3, WP013 02.
c. Release switch S9.		
4. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>The WING XFER pressure transducer is monitored for this test. If transducer cannot be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs, all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to OFF.		
b. Set switch S1 to WING XFER. Record D1 display (non-nulled).		

Table 1. Wing Tank Fuel Transfer System Test (Continued)

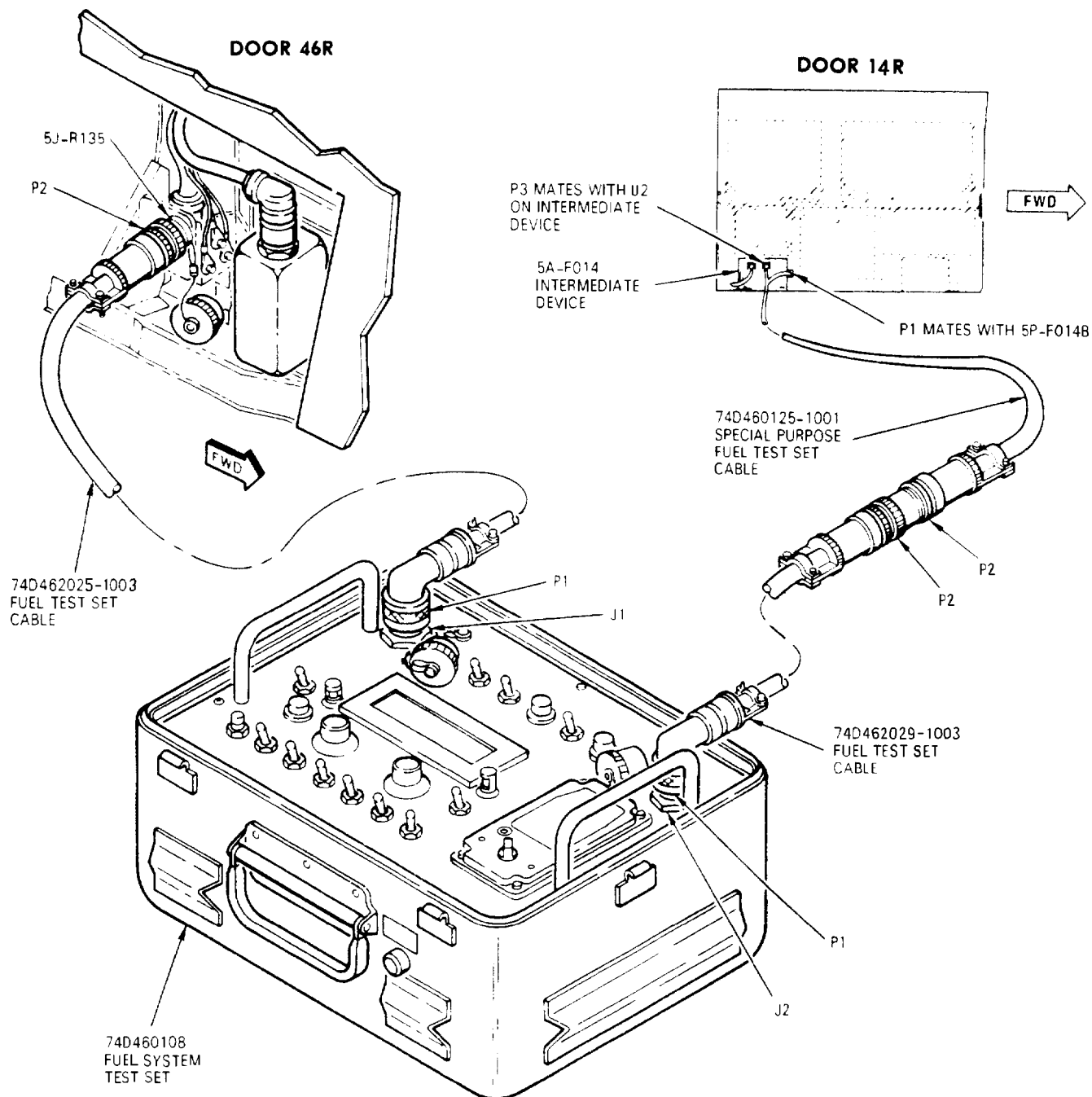
Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. Set switch S9 to NULL and release.</p> <p>5. TEST.</p> <p>a. On fuel system test set (fig 1), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - WING XFER S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - closed D3 - FUEL INDICA TOR- Selector knob to FEED.</p> <p>b. On 74D460108-1003 test set, set switches as listed below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - NORM S14 - ON S15 - ON</p> <p>c. Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p>	D2 displays 00.0.	Do table 3, WP036 00.
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> WARNING </div> <p style="text-align: center;">To prevent possible fire, the vent outlets on the vertical stabilizer must be continually monitored during this test.</p>		
<p>d. On the vertical stabilizer, monitor the vent outlets. If fuel spills from the outlets, do substeps below:</p> <p>(1) Shut down engines (A1-F18AC-LMM-000).</p>		

Table 1. Wing Tank Fuel Transfer System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
(2) Tell fire department and take required action to make area safe.		
<p style="text-align: center;">NOTE</p> <p>The time required for the wing fuel tanks to empty must be monitored. This time is based upon the starting fuel amount of 400 lb in each wing fuel tank. Engines operating at ground IDLE (600 PPH), switch S6 on test set to OPEN (damage control valve open) and switch S7 on test set to FUS.</p> <p>After starting the left and right engine, the fuel flow to each engine may require adjustment.</p>		
e. Operate the left and right engines at ground IDLE (A1-F18AC-LMM-000). On the cockpit Crew Station Engine Monitor Indicator AEU-12/A, observe the L ENGINE FF and R ENGINE FF indicators (fig 4). Record the time the engines were started.	The fuel flow to each engine is 600 PPH.	Adjust the throttle setting as required to obtain the required fuel flow.
<p style="text-align: center;">NOTE</p> <p>While wing fuel tanks are emptying, tanks 2 and 3 jet level sensor cycle can be tested. If tank 2 or 3 is not cycling correctly the tank could overflow causing fuel to enter the vent system. This could cause a fault symptom of slow or no wing fuel transfer.</p>		
f. Monitor D3 FUEL INDICATOR LEFT counter in FEED setting (tank 2).	Using JP-4, LEFT counter cycles within 1360 to 1570. Using JP-5, LEFT counter cycles within 1470 to 1690.	Do table 2, WP012 04.
g. Monitor RIGHT counter in FEED setting (tank 3).	Using JP-4, RIGHT counter cycles within 1070 to 1225. Using JP-5, RIGHT counter cycles within 1150 to 1320.	Do table 2, WP012 05.
h. Set D3 FUEL INDICATOR selector knob to INTR WING.		
i. Monitor LEFT and RIGHT counters to determine the time required for both wing fuel tanks to deplete to 50 pounds. Record required time. Allow both wing fuel tanks to empty and monitor D1 display.	D1 displays 3 PSI when wing tanks are transferring. The time required for both LEFT and RIGHT counters to indicate 50 pounds is less than 10 minutes. When wing tanks empty, D1 will display 0 PSI.	Do table 1, WP019 00.
j. Shut down engines (A1-F18AC-LMM-000).		

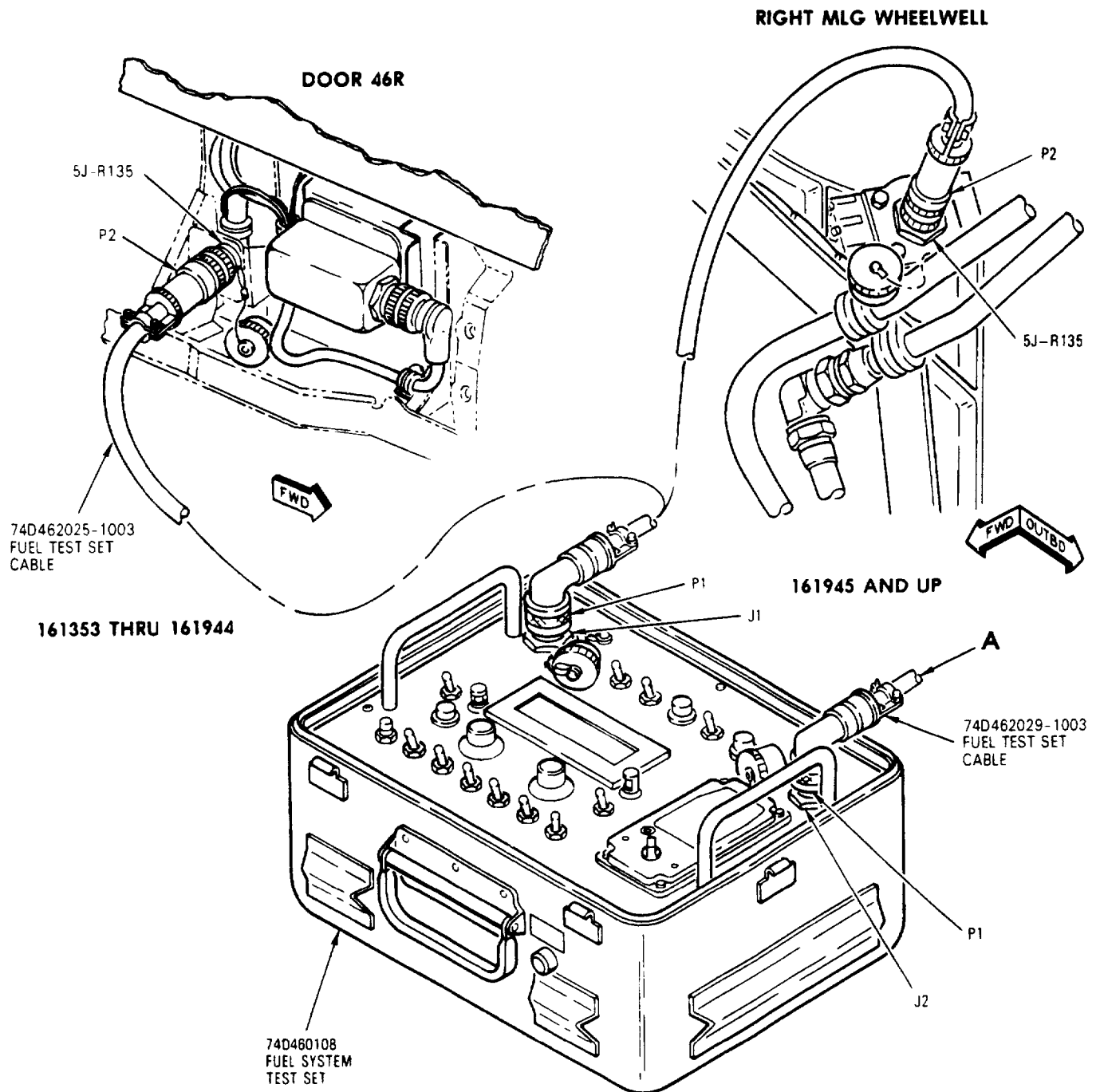
Table 1. Wing Tank Fuel Transfer System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>6. FINAL.</p> <p>a. Remove external electrical power (A1-F18AC-LMM-000).</p> <p>b. On no. 8 circuit breaker/relay panel assembly (fig 4), close the FUEL LOW LVL WRN circuit breaker (door 10L).</p> <p>c. Disconnect fuel system test set (fig 1).</p> <p>d. Close door 10L and, if applicable, 46R (A1-F18AC-LMM-010).</p> <p>e. If external fuel tanks are installed; on FUEL system control panel (fig 4), set the EXT TKS WING and CTR switches to NORM.</p>		



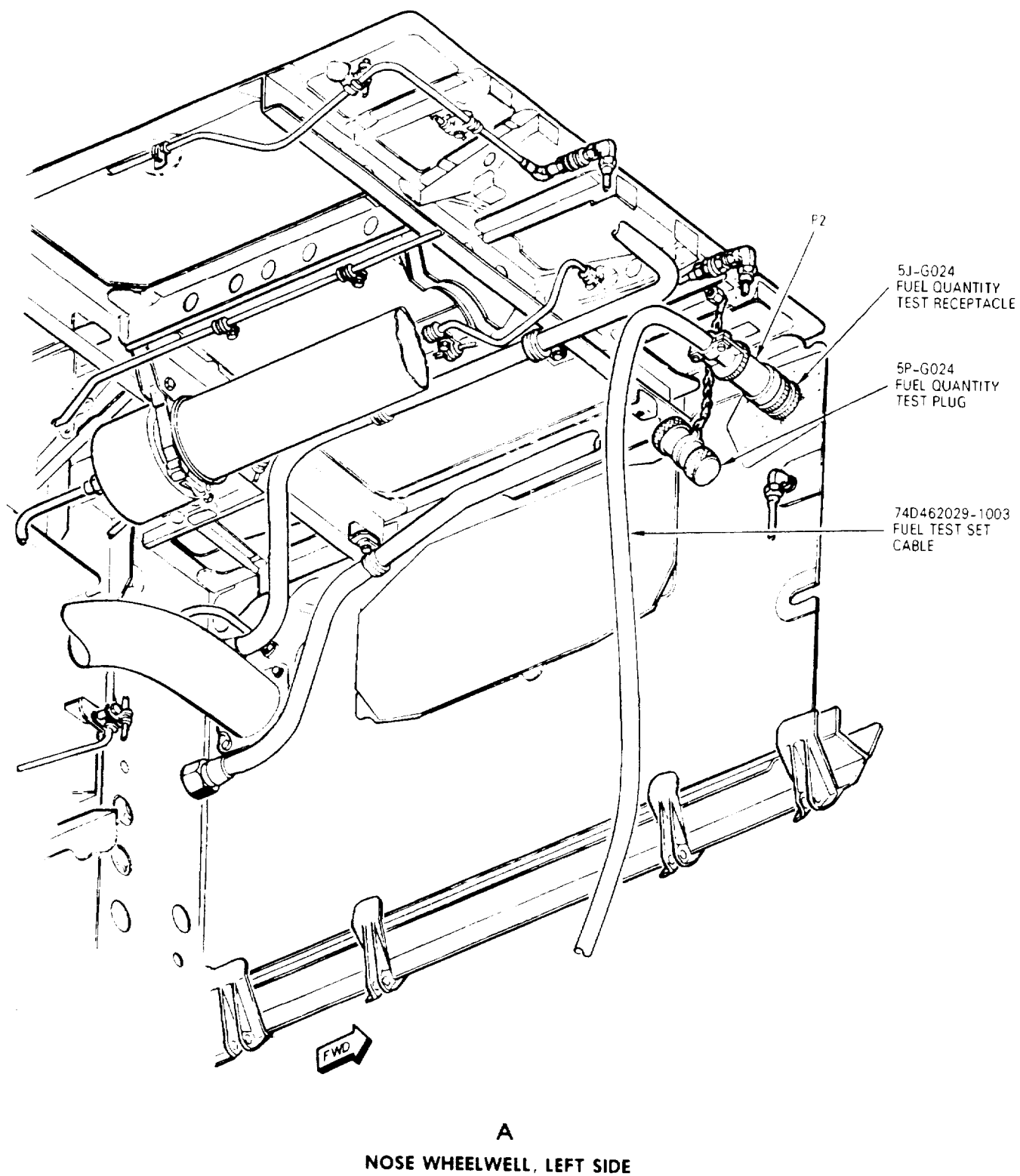
018001

Figure 1. Fuel System Test Set Hookup, 161353 THRU 161359 BEFORE F/A-18 AFC 53



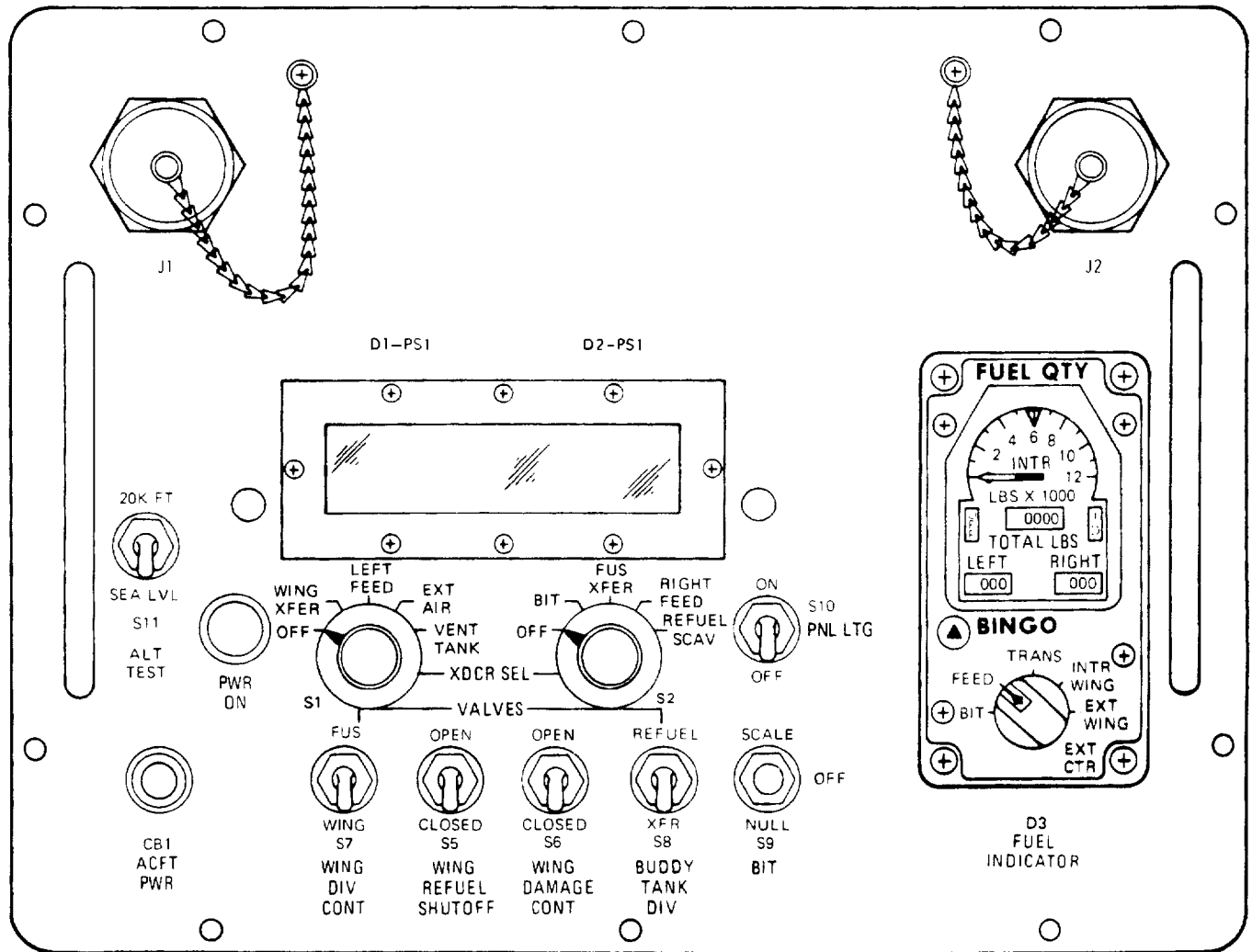
018001

Figure 2. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 1 of 2)



01800201

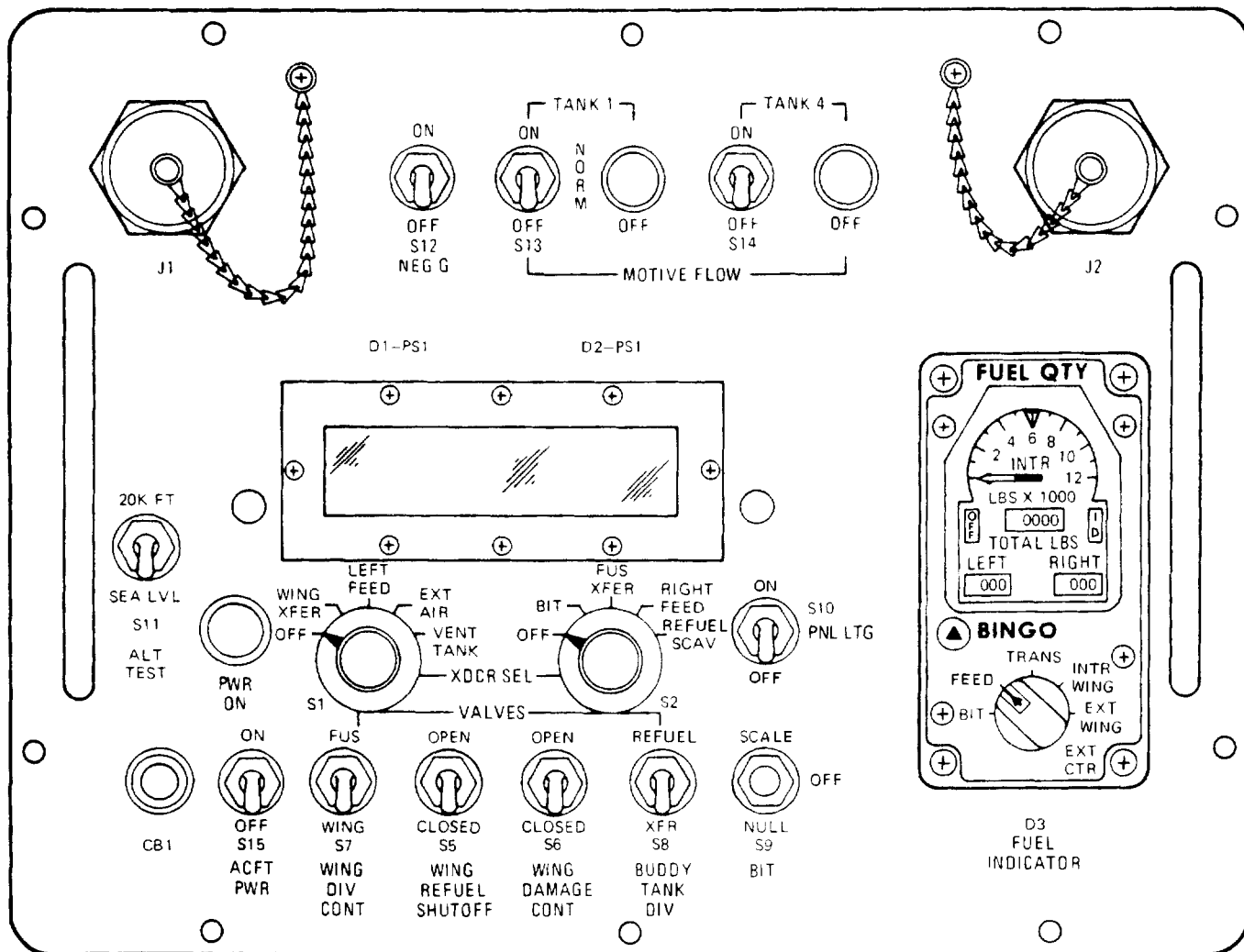
Figure 2. Fuel System Test Set Hookup, 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53 (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 3. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



FUEL SYSTEM TEST SET 74D460108-1003

B

Figure 3. Fuel System Test Set Controls and Displays (Sheet 2)

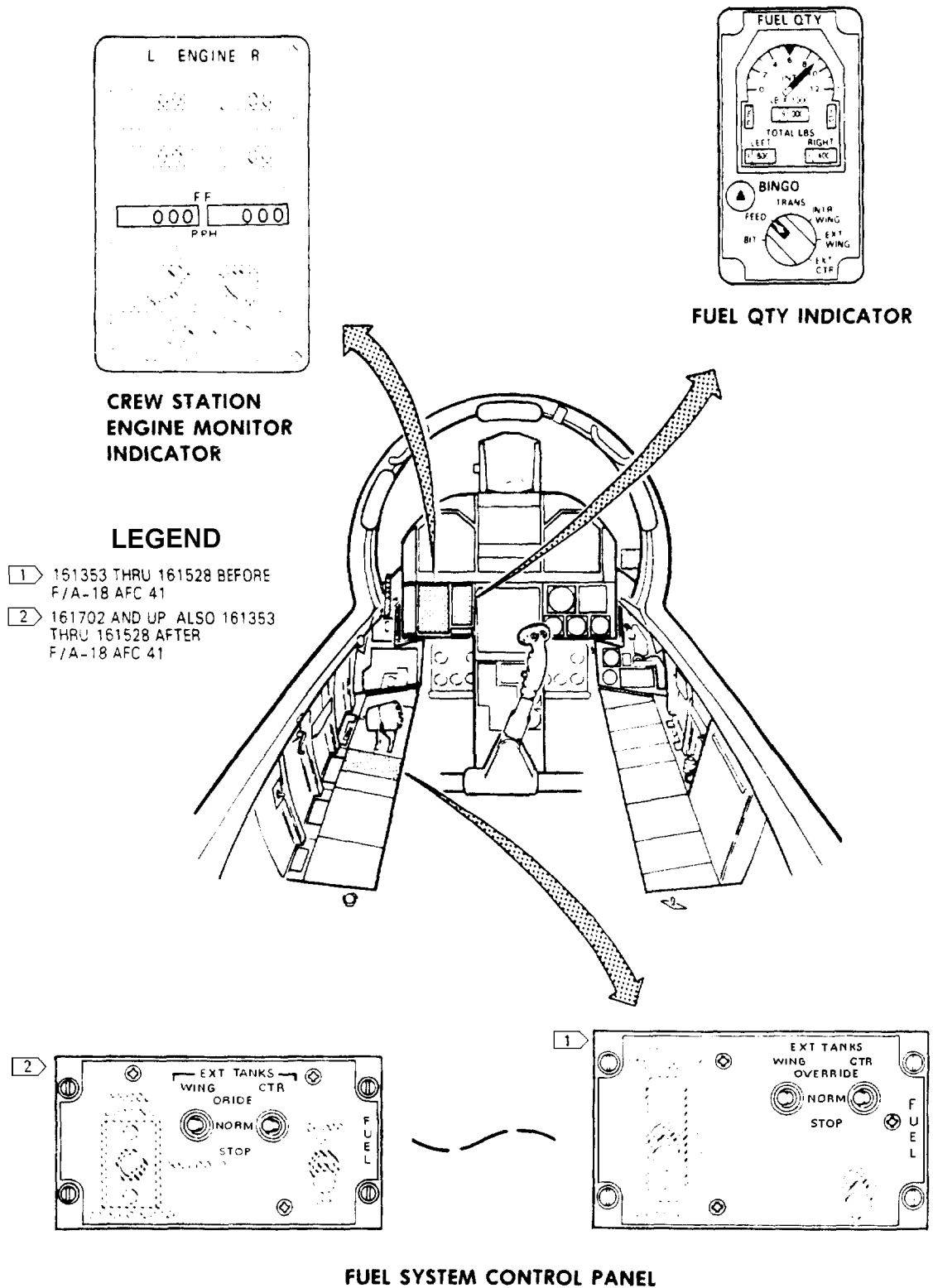
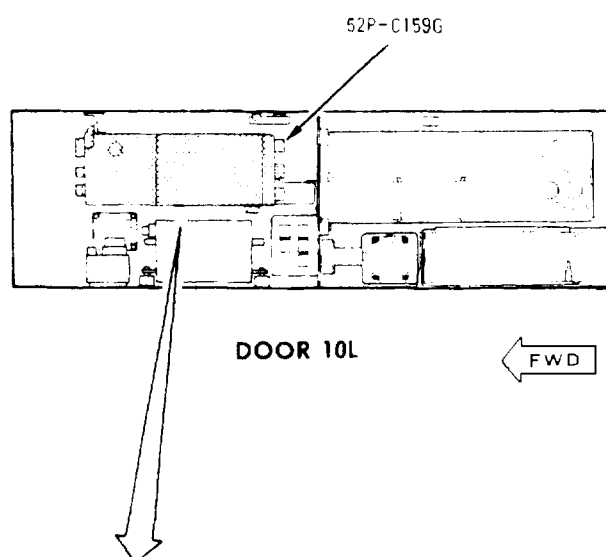


Figure 4. Wing Tank Fuel Transfer System Component Locator (Sheet 1 of 2)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A5	5CBC050	FUEL LOW LVL WRN	L 28VDC

Figure 4. Wing Tank Fuel Transfer System Component Locator (Sheet 2)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
WING TRANSFER SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Wing Fuel Tanks Do Not Transfer, Table 1	1

Record of Applicable Technical Directives

None

Table 1. Wing Fuel Tanks Do Not Transfer

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation 260-6XLP (AN/USM-311)	Nomenclature Multimeter
Materials Required	
None	
NOTE	
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP014 00.	

Table 1. Wing Fuel Tanks Do Not Transfer (Continued)

Malfunction is caused by one of the items listed below: Aircraft Wiring Fuel Diverter Valve Fuel Transfer Tube/Strainer INTR WING Switch No. 8 Circuit Breaker/Relay Panel Assembly Wing Damage Fuel Shutoff Valve Wing Motive Flow Pilot Float Valve Wing Transfer Jet Ejector Wing Transfer Motive Flow Shutoff Valve 5K-C052 Fuel Low Level Relay No. 2		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do substeps below: (1) Shut down engines (A1-F18AC-LMM-000). (2) Turn off electrical power (A1-F18AC-LMM-000). (3) If both wing fuel tanks are not transferring, do step b. If one wing fuel tank is not transferring, do step e	-	-
b. Do substeps below: (1) Remove door 40 (A1-F18AC-LMM-010). (2) Disconnect 5P-R120. (3) Turn on electrical power (A1-F18AC-LMM-000). (4) Does 28vdc exist at 5P-R120 pin 13?	c	d

Table 1. Wing Fuel Tanks Do Not Transfer (Continued)

Procedure	No	Yes
c. Replace wing damage fuel shutoff valve (A1-F18AC-460-300, WP122 00) and do step n	-	-
d. Make sure switch S6 on fuel system test set is set to OPEN and INTR WING switch on cockpit EXT LT control panel is set to NORM, then replace INTR WING switch on EXT LT control panel assembly (A1-F18AC-440-300, WP004 00) and do step n	-	-
e. Do substeps below:		
(1) Remove door 40 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-R120.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 5P-R120 pins 7 and 10?	f	g
f. Remove the wing transfer jet ejector from the wing that does not transfer (A1-F18AC-460-300, WP124 00). Is the ejector strainer clogged or the inlet flapper check valve failed close?	h	k
g. Do substeps listed below:		
(1) Make sure the fuel system test switch S7 is set to FUS.		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Turn off electrical power (A1-F18AC-LMM-000).		
(4) Disconnect 5P-C159G from no. 8 circuit breaker/relay panel assembly.		
(5) Disconnect test set cable from fuel ground test receptacle.		
(6) Does continuity exist from 5J-R135 pin 53 to 52P-C159F pin 19?	l	m
h. On 161735 THRU 161924, do substeps below:		
(1) Remove door 41L or 41R (A1-F18AC-LMM-010).		
(2) Remove fuel transfer tube and strainer (A1-F18AC-460-300, WP124 01). Inspect strainer for obstruction. Is strainer clogged?	i	j
i. Replace the wing motive flow pilot float valve (A1-F18AC-460-300, WP123 00) and wing transfer motive flow shutoff valve (A1-F18AC-460-300, WP124 00). Start test again. If wing transfer test is not satisfactory, replace the fuel diverter valve (A1-F18AC-460-300, WP146 00) and do step n	-	-
j. Remove obstruction from strainer, reinstall tube (A1-F18AC-460-300, WP124 01) and do step n	-	-

Table 1. Wing Fuel Tanks Do Not Transfer (Continued)

Procedure	No	Yes
k. Remove obstruction from strainer, if strainer is not clogged replace the wing transfer jet ejector (A1-F18AC-460-300, WP124 00) and do step n	-	-
l. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step n	-	-
m. Isolate between the 5K-C052 fuel low level relay no. 2 and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step n	-	-
n. If disconnected, removed or opened during this procedure, make sure the items listed below are connected, installed or closed:		
(1) Connectors 5P-R120 and 52P-C159G		
(2) Fuel transfer tube		
(3) Wing transfer jet ejector		
(4) Doors 10L, 40, 41L and 41R	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
WING FUEL TRANSFER SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Wing Fuel Transfer System Component Locator, Figure 1	2

Record of Applicable Technical Directives

None

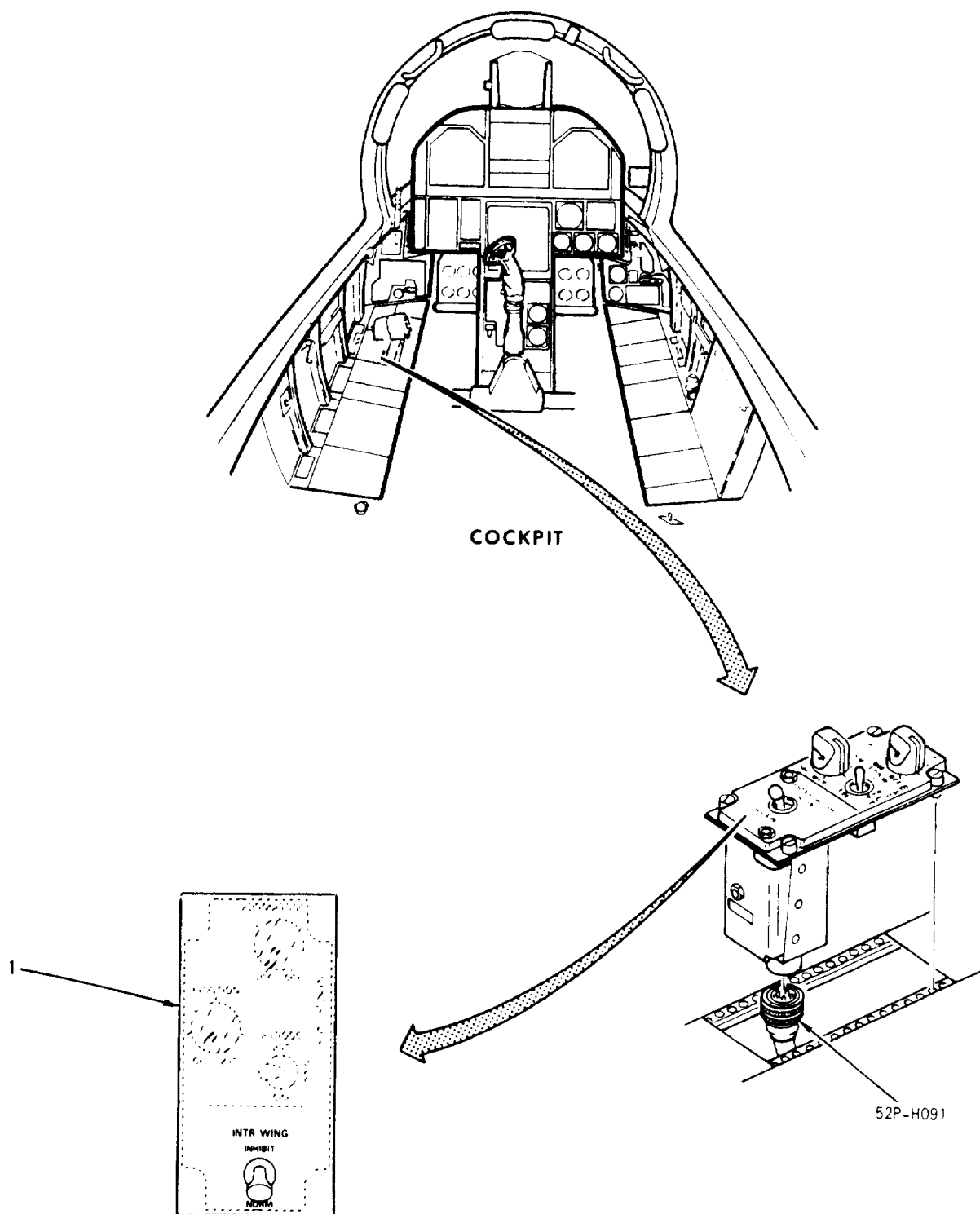
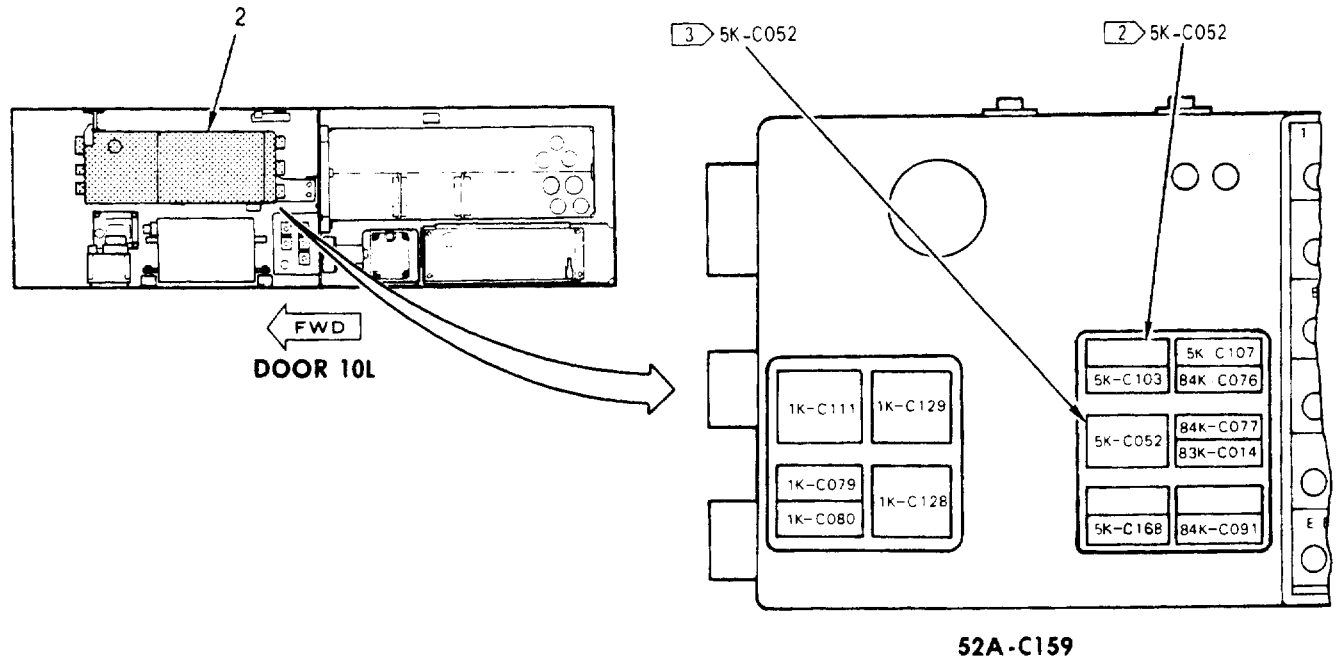
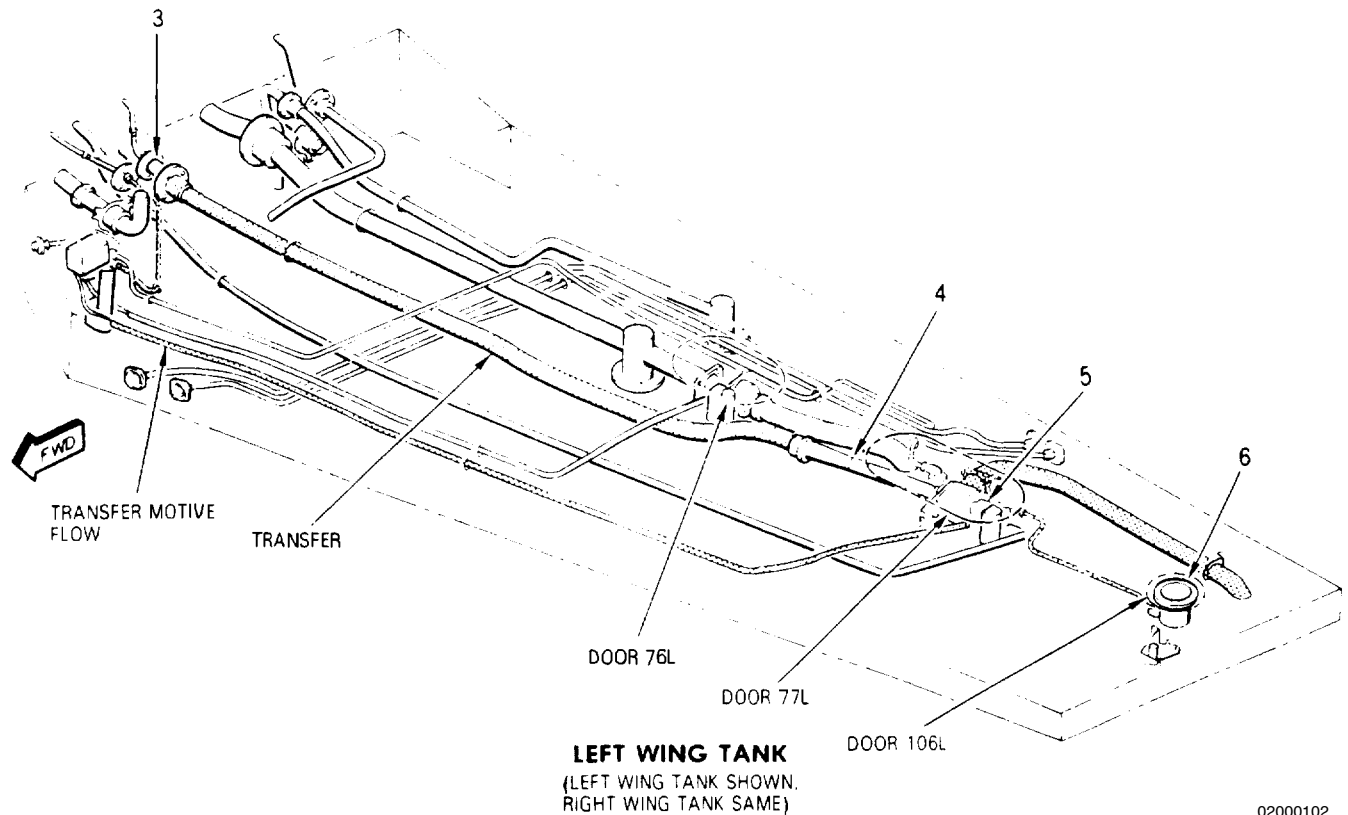


Figure 1. Wing Fuel Transfer System Component Locator (Sheet 1 of 5)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A7	5CBC115 5K-C052	WING FUEL FUEL LOW LEVEL RELAY NO. 2	L 28VDC



02000102

Figure 1. Wing Fuel Transfer System Component Locator (Sheet 2)

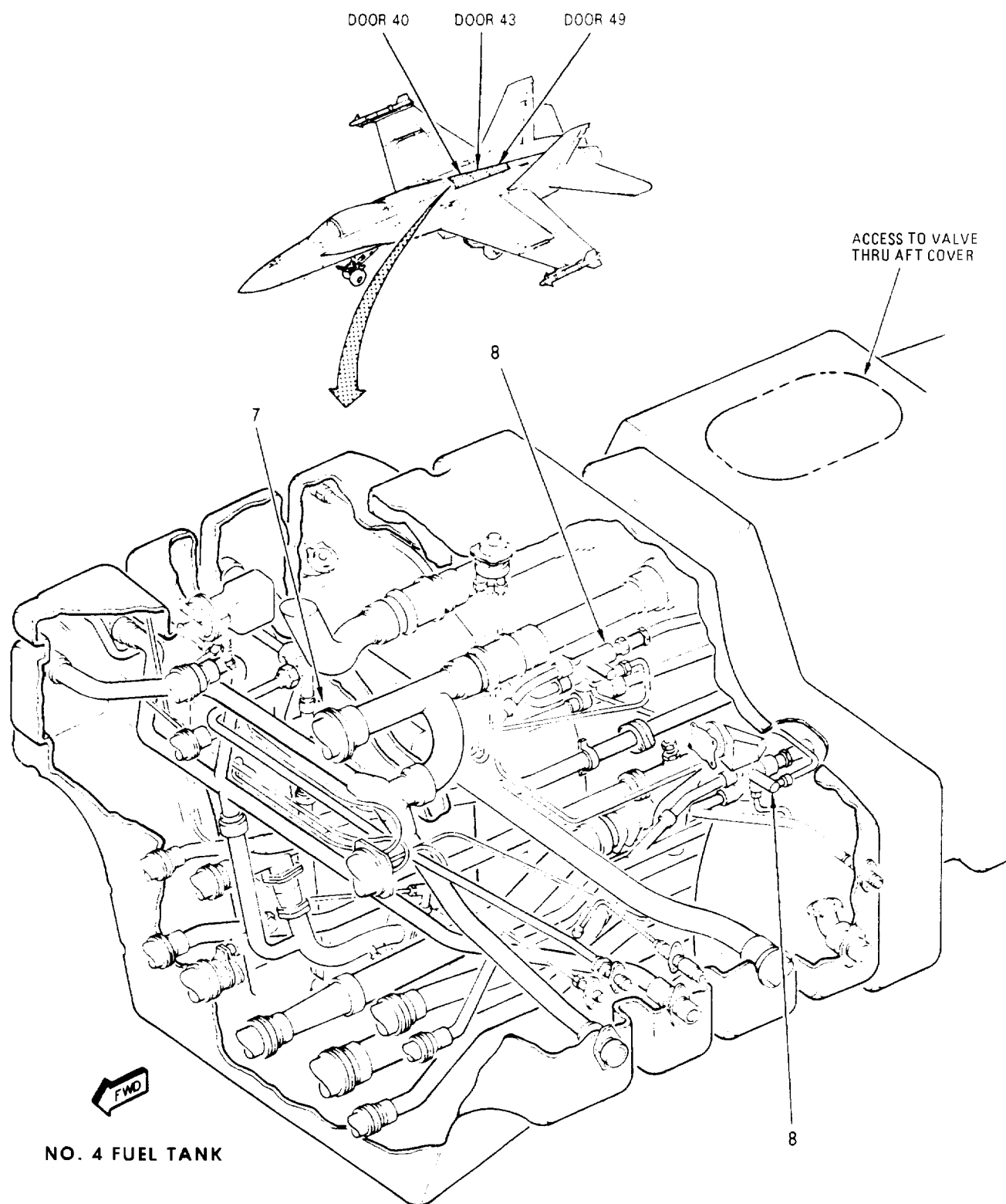
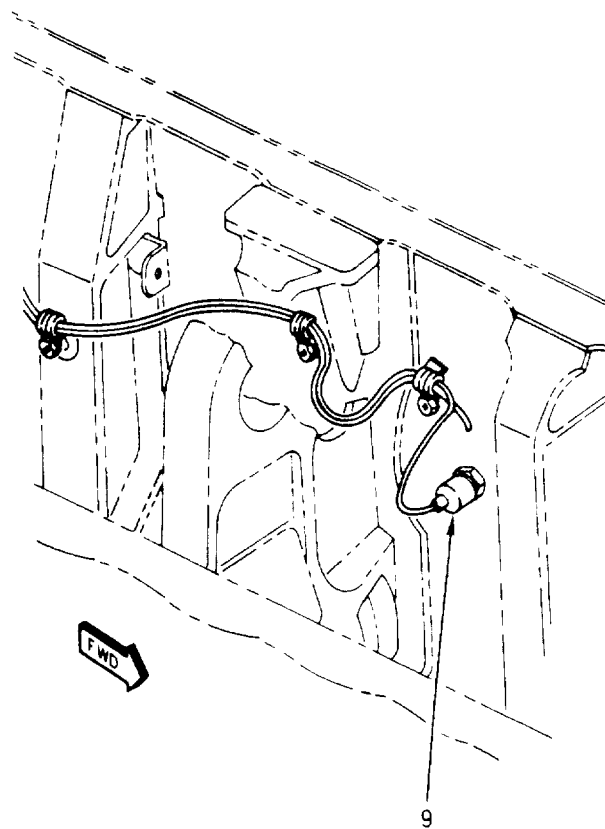


Figure 1. Wing Fuel Transfer System Component Locator (Sheet 3)



DOOR 41R

Figure 1. Wing Fuel Transfer System Component Locator (Sheet 4)

Nomenclature	Index No.	Ref Des
EXT LT CONTROL PANEL ASSEMBLY INTR WING SWITCH	1	52A-H091 5S-H026
FUEL DIVERTER VALVE LEFT RIGHT	8	5L-P119 5L-R118
FUEL TRANSFER TUBE/STRAINER LEFT RIGHT	3	5FAU681 5FAV682
MOTIVE FLOW SHUTOFF VALVE LEFT RIGHT	5	5VAU543 5VAV544
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	2	52A-C159
WING DAMAGE SHUTOFF VALVE	7	5L-R110
WING MOTIVE FLOW PILOT VALVE LEFT RIGHT	6	5VAU528 5VAV529
WING TRANSFER JET EJECTOR LEFT RIGHT	4	5BAU548 5BAV549
WING TRANSFER PRESSURE TRANSDUCER	9	5MTR125
LEGEND		
1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.		
2 161353 THRU 161519.		
3 161520 AND UP.		

Figure 1. Wing Fuel Transfer System Component Locator (Sheet 5)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST
FUEL PRESSURIZATION AND VENT SYSTEM

Reference Material

Plane Captain Manual	A1-F18AC-PCM-000
Line Maintenance Procedures	A1-F18AC-LMM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010

Alphabetical Index

Subject	Page No.
Fuel Pressurization and Vent System Test	1
Fuel Pressurization and Vent System Test Component Locator, Figure 3	23
Fuel System Test Set Controls and Displays, Figure 2	21
Fuel System Test Set Hookup, Figure 1	19
Interconnect, Dive Vent Check and Gravity Feed Check Valves Troubleshooting, Table 3	15
Internal Pressurization System Test, Table 1	2
Vent Tank Scavenge Test, Table 2	8
Vent Tank Scavenge Test Hookup, Figure 4	24

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP-MDA-F/A-18-00054C1)	1 Oct 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—

NOTE

Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.

1. FUEL PRESSURIZATION AND VENT SYSTEM TEST.

2. The Fuel Pressurization and Vent System Test is used to verify that the systems are functioning correctly. The system test must be done in sequence, and any abnormal indication must be corrected before going to the next step.

Table 1. Internal Pressurization System Test

Procedure	Normal Indication	Remedy for Abnormal Indication										
<div>System Required Components</div> <div>All system components installed.</div> <div>Related Systems Required</div> <div>Electrical System Power Plant and Related Systems Secondary Power System Multipurpose Display Group</div> <div>Support Equipment Required</div> <table><thead><tr><th>Part Number or Type Designation</th><th>Nomenclature</th></tr></thead><tbody><tr><td>74D460108-1001</td><td>Fuel System Test Set</td></tr><tr><td>74D460108-1003</td><td>Fuel System Test Set</td></tr><tr><td>74D420030-1001</td><td>Proximity Switch Control</td></tr><tr><td>—</td><td>External Electrical Power Source</td></tr></tbody></table> <div>Materials Required</div> <div>None</div>			Part Number or Type Designation	Nomenclature	74D460108-1001	Fuel System Test Set	74D460108-1003	Fuel System Test Set	74D420030-1001	Proximity Switch Control	—	External Electrical Power Source
Part Number or Type Designation	Nomenclature											
74D460108-1001	Fuel System Test Set											
74D460108-1003	Fuel System Test Set											
74D420030-1001	Proximity Switch Control											
—	External Electrical Power Source											
<div>1. FUEL SYSTEM TEST SET HOOKUP.</div> <div>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</div> <div>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</div> <div>(1) On fuel system test set, remove J1 protective cap (fig 2).</div> <div>(2) Connect test cable P1 to J1 on test set (fig 1).</div> <div>(3) Connect test cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</div> <div>(4) Position test set near right wing tip.</div>												

Table 1. Internal Pressurization System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>c. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F18 AFC 53, hookup fuel test set cable 74D462029-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J2 protective cap (fig 2).</p> <p>(2) Connect test cable P1 to J2 on test set (fig 1).</p> <p>(3) Disconnect 5P-G024 from 5J-G024 fuel quantity test receptacle (nose wheelwell, left side).</p> <p>(4) Connect test cable P2 to 5J-G024 fuel quantity test receptacle.</p> <p>d. On fuel system test set (fig 2), set switches as listed below:</p> <p style="padding-left: 40px;">S1 - OFF S2 - OFF S5 - CLOSED S6 - OPEN S7 - FUS S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL CB1 - open D3 - FUEL INDICA TOR- Selector knob to FEED</p> <p>e. On 74D460108-1003 fuel system test set, set switches as listed below:</p> <p style="padding-left: 40px;">S12 - OFF S13 - NORM S14 - ON S15 - OFF</p>		

Table 1. Internal Pressurization System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>2. PREPARATION.</p> <div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> WARNING </div> <p>To prevent death or injury to personnel and damage to aircraft, all warnings and cautions relating to external electrical power application and removal (application - weight off wheels, removal - weight off wheels), shall be observed while using proximity switch control box. Failure to comply may cause aircraft systems to be energized to an inflight condition.</p> <p>a. Hook up proximity switch control unit (A1-F18AC-LMM-000).</p> <p>b. Set switches on proximity switch control unit as listed below:</p> <p style="margin-left: 40px;">LEFT GEAR - WT OFF WHL NOSE GEAR - NORM RIGHT GEAR - NORM</p> <p>c. Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p> <p>d. Set switches in cockpit on FUEL system control panel (fig 3) as listed below:</p> <p style="margin-left: 40px;">EXT TANKS WING - NORM CTR - NORM DUMP - OFF PROBE - RETRACT</p> <p>e. Apply external electrical power (A1-F18AC-LMM-000).</p> <p>f. Set up cockpit Digital Display Indicator IP-1317() for display (A1-F18AC-LMM-000).</p> <p>g. On fuel system test set, close CB1 circuit breaker (fig 2).</p> <p>h. On 74D460108-1003 test set, set switch S15 to ON.</p>	<p>D1 and D2 displays all minus signs.</p>	<p>Do table 2, WP 022 01.</p>

Table 1. Internal Pressurization System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
3. TRANSDUCER CHANNEL BIT (QA).		
a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release.	D2 displays 0000 \pm 00.1.	Do table 2, WP 022 01.
b. Set switch S9 to SCALE and hold.	D2 displays 25 to 35 PSI.	Do table 2, WP 022 01.
c. Release switch S9.		
4. TRANSDUCER NULL. (QA)		
<p style="text-align: center;">NOTE</p> <p>Only the vent tank pressure transducer is monitored for this test. If transducer can not be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S2 to OFF.		
b. Set switch S1 to VENT TANK. Record D1 display (non-nulled).		
c. Set switch S9 to NULL and release.	D1 displays 0.00.	Do table 5, WP036 00.
5. TEST. (QA)		
a. In door 10L, on no. 8 circuit breaker/relay panel assembly, set 5CBC101 FUEL TK PRESS circuit breaker.		
<div style="border: 2px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent possible fuel spillage, fuel vents must be monitored throughout procedure so engines can be shut down at first indication of fuel venting.</p>		
b. Operate both engines at ground IDLE (A1-F18AC-LMM-000).		

Table 1. Internal Pressurization System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
c. On test set, observe D1 display.	D1 displays 0.25 to 1.00 PSI.	1. If using engines and no pressure exists, increase engine power setting to flight idle (approximately 72%). If no pressure exists, do table 1, WP022 00. 2. If high pressure exists, do table 2, WP022 00.
<div style="border: 2px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent injury to personnel or damage to equipment, the arresting gear safety pin must be installed.</p>		
d. Make sure the arresting gear safety pin is installed (A1-F18AC-PCM-000).		
e. Set arresting HOOK control handle down (fig 3).	D1 displays air pressure decreasing to 0 PSI.	Do table 3, WP022 00.
f. Set arresting HOOK control handle up (fig 3).	D1 displays air pressure increased to 0.25 to 1.00 PSI.	On fuel system test set, set switch S1 to EXT AIR. If D1 displays 15 to 18 PSI, replace 5K-C107 external tank refuel control relay (A1-F18AC-420-300, WP030 00). If D1 displays 0 to 1.5 PSI, replace the arresting hook control handle (A1-F18AC-130-300, WP088 00).
g. On 161360 AND UP, ALSO 161353 THRU 161359 AFTER F/A-18 AFC 53, do substeps below:	1. D1 displays air pressure increased to 2.5 to 3.5 PSI.	Do table 4, WP 022 00.
(1) Increase engine settings to 80%.		
(2) Set S11 switch to 20K Ft.	2. TANK PRESS caution displayed on left Digital Display Indicator IP-1317() and MASTER CAUTION light displayed.	Do table 5, WP022 00.
h. On proximity switch control, set LEFT GEAR switch to NORM.	D1 displays air pressure decreased to 0 PSI.	Do table 6, WP 022 00.

Table 1. Internal Pressurization System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
i. On proximity switch control, set LEFT GEAR switch to WT OFF WHL.	D1 displays air pressure increased to 2.5 to 3.5 PSI.	Isolate between no. 3 relay panel assembly wiring and 12K-E020 relay (A1-F18AC-420-300, WP035 00).
<div style="text-align: center; border: 2px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> WARNING </div> <p style="text-align: center;">To prevent injury to personnel or damage to inflight refueling probe make sure probe area is clear.</p>		
j. On FUEL system control, panel, set PROBE control switch to EXTEND (fig 3). Observe D1 display.	1. Probe extends if testing using engines. 2. D1 displays air pressure decreased to 0 PSI.	1. Refer to WP004 00. 2. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00).
k. Set PROBE control switch to RETRACT.	1. Probe retracts if testing using engines. 2. D1 displays air pressure increased to 2.5 to 3.5 PSI.	1. Refer to WP004 00. 2. Replace Fuel system control panel (A1-F18AC-460-300, WP104 00).
l. Decrease engine power setting to ground IDLE (A1-F18AC-LMM-000).		
m. Do substeps below: (1) Set S11 switch to SEA LVL (fig 2). (2) On proximity switch control, set LEFT GEAR switch to NORM. (3) Observe cockpit left Digital Display Indicator IP-1317() for displays (fig 3).	TANK PRESS caution not displayed on left digital display indicator and MASTER CAUTION light not displayed.	Replace air pressure switch (A1-F18AC-460-300, WP149 00).
6. FINAL.		
a. Turn off cockpit Digital Display Indicator IP-1317() (A1-F18AC-LMM-000).		
b. Shut down engine (A1-F18AC-LMM-000).	D1 displays 0 PSI.	Drain vent tank.

Table 1. Internal Pressurization System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
c. Remove external electrical power (A1-F18AC-LMM-000). d. Remove proximity switch control (A1-F18AC-LMM-000). e. Disconnect fuel system test set. f. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM-010).		

Table 2. Vent Tank Scavenge Test

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
Part Number or Type Designation		Nomenclature
74D460020-1001		Drain Adapter Set
74D460108-1001		Fuel System Test Set
74D460108-1003		Fuel System Test Set
—		External Electrical Power Source
Materials Required		
Specification or Part Number		Nomenclature
VV-P-236 (FSCM 81348)		Technical Petrolatum
1. PREPARATION. a. INTR should be no more than 8000 lb. Defuel aircraft (A1-F18AC-PCM-000), if required. b. Gravity drain vent tank (A1-F18AC-PCM-000). c. Disconnect refueling equipment (A1-F18AC-PCM-000). d. Turn off electrical power (A1-F18AC-LMM-000).		

Table 2. Vent Tank Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>2. FUEL SYSTEM TEST SET HOOKUP.</p> <p>a. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM-010).</p> <p>b. Hookup fuel test set cable 74D462025-1003 per substeps below:</p> <p>(1) On fuel system test set, remove J1 protective cap (fig 2).</p> <p>(2) Connect test cable P1 to J1 on test set.</p> <p>(3) Connect test cable P2 to 5J-R135 test receptacle (door 46R or right MLG wheelwell).</p> <p>(4) Position test set near right wing tip.</p> <p>c. On fuel system test set (fig 2), set switches as listed below:</p> <p>S1- OFF S2- OFF S5- CLOSED S6- OPEN S7- FUS S8- XFR S9- OFF S10- OFF S11- SEA LVL CB1- open D3 - FUEL INDICA TOR- Selector knob to FEED</p> <p>d. On 74D460108-1003 fuel system test set, set switches as listed below:</p> <p>S12- OFF S13- NORM S14- ON S15- OFF</p>		

Table 2. Vent Tank Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
e. Turn on external electrical power (A1-F18AC-LMM-000). f. On test set, close CB1 circuit breaker. g. On 74D460108-1003 test set, set switch S15 to ON. 3. TRANSDUCER CHANNEL BIT (QA). a. On test set, set switch S2 to BIT. Set switch S9 to NULL and release. b. Set switch S9 to SCALE and hold. c. Release switch S9. 4. TRANSDUCER NULL. (QA)	D1 and D2 displays all minus signs. D2 displays 0000 \pm 00.1. D2 displays 25 to 35 PSI.	Do table 2, WP022 01. Do table 2, WP022 01. Do table 2, WP022 01.
<p style="text-align: center;">NOTE</p> <p>The VENT TANK pressure transducer is monitored for this test. If transducer can not be nulled to specified display, bad test indications will result. Malfunction must be corrected before starting test.</p> <p>If a power interrupt occurs all minus signs will be displayed. Resetting S2 switch to BIT will return displays to a non-nulled condition. To prevent stopping test if a power interrupt occurs, non-nulled starting amounts should be recorded. Amounts then can be adjusted when test is complete.</p>		
a. Set switch S1 to VENT TANK. Record D1 display (non-nulled). b. Set switch S9 to NULL and release. 5. TEST HOOKUP. a. Remove any two dust caps from manifold adapter assembly (figure 4).	D1 displays 0.00.	Do table 5, WP036 00.

Table 2. Vent Tank Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>To aid in connection and disconnection of hose assemblies and drain fitting adapters, packings should be lubricated with technical petrolatum.</p>		
<p>b. On 74D461053-1009 or 74D461053-1003 hose assemblies, lubricate quick disconnect packings with technical petrolatum.</p>		
<div style="text-align: center; border: 2px solid black; padding: 5px; width: fit-content; margin: 10px auto;">WARNING</div> <p>To prevent fuel spillage resulting in possible fire and/or explosion, make sure quick disconnect ends of drain tubes are correctly installed on drain fitting adapters and manifold adapter assembly as labeled. Drain tube quick disconnect without an integral check valve attaches to drain fitting adapter. Drain tube quick disconnect with an integral check valve attaches to manifold adapter assembly.</p> <p>Drain fitting adapters are made of beryllium copper, a beryllium compound. Beryllium compounds are extremely toxic, and may enter the body through ingestion, inhalation of the dusts and fumes, and may act locally on the skin. Beryllium compounds will cause serious injury if not handled properly. Do not grind or file on components constructed from beryllium compounds. If abrasions, cuts, or sores exist on hands, rubber gloves must be worn when handling components constructed from beryllium compounds. Final disposal should be done in a manner that does not result in incineration of beryllium compounds. If material enters skin or contacts eyes, flush the area immediately with water and report to medical facility.</p>		
<p>c. On 74D461049-1011 or 74D461049-1005 drain fitting adapters, lubricate packings with technical petrolatum.</p>		
<p>d. Connect hose assemblies 74D461053-1009 or 74D461053-1003 per substeps below:</p> <p>(1) Connect ends labeled, MATE WITH JP205D4 ON 74D461048-1003/-1001 MANIFOLD ASSY to manifold adapter assembly.</p>		

Table 2. Vent Tank Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Connect ends labeled, MATE WITH JP205D4 ON 74D461049-1007/-1001, -1009/-1003, OR -1011/-1005 FITTING ASSY, to 74D461049-1011 or 74D461049-1005 drain fitting adapters.</p> <p>e. Install 74D461049-1011 or 74D461049-1005 drain fitting adapter on vent tank drain valve per substeps below:</p> <p>(1) Position drain fitting adapter (74D461049-1011 or 74D461049-1005) on vent tank drain valve.</p> <p>(2) Push drain fitting adapter up in drain valve and rotate adapter counterclockwise 90° to open drain valve. While holding adapter, turn adapter nut clockwise and hand tighten (locks adapter to drain valve).</p>		
NOTE		
The range of fuel the vent tank can hold is 0.00 PSI (empty) to 2.50 PSI (full).		
<p>f. Install 74D461049-1011 or 74D461049-1005 drain fitting adapter on no. 4 fuel tank drain valve per substeps below:</p> <p>(1) Position drain fitting adapter (74D461049-1011 or 74D461049-1005) on no. 4 fuel tank drain valve.</p>		


Table 2. Vent Tank Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(2) Push drain fitting adapter up in no. 4 fuel tank drain valve and rotate adapter counterclockwise 90° to open drain valve. While holding adapter, turn adapter nut clockwise and hand tighten (locks adapter to drain valve).</p> <p>g. When D1 display stops increasing, disconnect drain fitting adapters from no. 4 fuel tank and vent tank drain valves per substeps below:</p> <p>(1) Position approved safety container under drain valve to catch residual fuel when disconnecting hose assembly.</p> <p>(2) Loosen nut on drain fitting adapter. Push in drain fitting adapter and turn adapter 90° clockwise to close drain valve.</p> <p>(3) Drain residual fuel from manifold adapter and hose assemblies.</p> <p>h. Move manifold adapter and hose assemblies away from aircraft.</p> <p>6. RIGHT SIDE VENT TANK SCAVENGE TEST.</p>	<p>D1 display increasing as no. 4 fuel tank is draining and filling the vent tank when D1 display stops increasing, record D1 amount.</p>	<p>If fuel cannot be seen flowing from no. 4 fuel tank drain valve, inspect for clogged tank 4 drain tube (A1-F18AC-PIM-000, WP074 00). If tube is not clogged, replace no. 4 fuel tank drain valve (A1-F18AC-PIM-000, WP066 00). If vent tank is not filling, inspect for clogged vent tank drain tube (A1-F18AC-PIM-000, WP094 00). If tube is not clogged, replace vent tank drain valve (A1-F18AC-460-300, WP006 00).</p>

Table 2. Vent Tank Scavenge Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<div style="text-align: center; border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> WARNING </div> <p style="text-align: center;">The fuel dump and vent outlets on each vertical stabilizer should be monitored for fuel spills. If fuel spills, the APU or engine should be shut down (A1-F18AC-LMM-000) and the fire department told.</p>		
<p>a. Operate APU in ground maintenance mode, right AMAD only or operate right engine at ground IDLE (A1-F18AC-LMM-000). Record time when APU or engine is started.</p> <p>b. Shut down engine or APU (A1-F18AC-LMM-000).</p> <p>c. Repeat para 5, steps e thru h.</p>	<p>D1 display decreases from amount previously recorded to approximately 0.00 PSI within 3 minutes.</p>	<p>Do table 1, WP022 01.</p>
<p>7. LEFT SIDE VENT TANK SCAVENGE TEST.</p> <p>a. Operate APU in ground maintenance mode, left AMAD only or operate left engine at ground IDLE (A1-F18AC-LMM-000). Record time when APU or engine is started.</p> <p>b. Shut down engine or APU (A1-F18AC-LMM-000).</p>	<p>D1 displays decreases from amount previously recorded to approximately 0.00 PSI within 3 minutes.</p>	<p>Do table 1, WP022 01.</p>
<p>8. FINAL.</p> <p>a. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>b. Drain any residual fuel from manifold adapter and hoses into approved safety container.</p> <p>c. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM-010).</p>		

Table 3. Interconnect, Dive Vent Check and Gravity Feed Check Valves Troubleshooting

<p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00) and Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.</p> <p>For component location, refer to figure 1, WP023 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Dive Vent Check Valves</p> <p>Gravity Feed Check Valve</p> <p>Pressure Operated Interconnect Valves</p>		
Procedure	No	Yes
<p align="center"></p> <p>To prevent damages to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p align="center">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Short between shield and conductors. 5. Shield continuity. <p>When doing this procedure, the FUEL QTY indicator is monitored to determine which prechecked tank is accepting fuel thereby determining which tank has a failed interconnect valve.</p>		

**Table 3. Interconnect, Dive Vent Check and Gravity Feed
Check Valves Troubleshooting (Continued)**

Procedure	No	Yes
<p>During refueling, the FUEL QTY indicator must be monitored in the setting listed below:</p> <p>(1) FEED - No. 2 fuel tank (LEFT counter) No. 3 fuel tank (RIGHT counter)</p> <p>(2) TRANS - No. 1 fuel tank (LEFT counter) No. 4 fuel tank (RIGHT counter)</p> <p>a. Do substeps below:</p> <p>(1) Defuel and drain aircraft (A1-F18AC-PCM-0000).</p> <p>(2) Allow vent tank drain valve to remain open and approved safety container to remain under drain valve.</p> <p>(3) On cockpit EXT LT control panel assembly, make sure INTR WING switch is set to NORM.</p> <p>(4) Move master precheck valve handle to UP PRECHECK (door 8).</p> <p>(5) Remove doors 141 L/R (A1-F18AC-LMM-010).</p> <p align="center">NOTE</p> <p>For purposes of this procedure, limit fuel pressure at the refueling nozzle to approximately 20 psi.</p> <p>(6) Start refueling using electrical power (A1-F18AC-PCM-000).</p> <p>(7) Allow 1 minute of refueling for valves to close. Record tank 1, 2, 3 and 4 fuel amounts.</p> <p>(8) On individual tank precheck valve (door 141 L/R) pull T2 and T3 handles down. Allow tanks 2 and 3 to fill to high level shutoff. Monitor tank 4 fuel amount. Does tank 4 fuel amount increase from amount recorded in step (7)?</p> <p>b. Monitor vent tank drain valve. Does fuel begin to drain from drain valve?</p> <p>c. Do substeps below:</p> <p>(1) Push T2 and T3 handles up.</p> <p>(2) Pull T4 handle down.</p> <p>(3) Allow tank 4 to fill to high level shutoff.</p> <p>(4) Monitor vent tank drain valve. Does fuel begin to drain from drain valve?</p>	<p>b</p> <p>c</p> <p>d</p>	<p>g</p> <p>h</p> <p>i</p>

**Table 3. Interconnect, Dive Vent Check and Gravity Feed
Check Valves Troubleshooting (Continued)**

Procedure	No	Yes
d. Do substeps below:		
(1) Push T4 handle up.		
(2) Pull T1 handle down.		
(3) Allow tank 1 to fill to high level shutoff.		
(4) Monitor vent tank drain valve. Does fuel begin to drain from drain valve?	e	j
e. Do substeps below:		
(1) Push T1 handle up.		
(2) Turn off fuel servicing equipment.		
(3) Rotate master precheck valve handle to DOWN OFF.		
(4) Disconnect fuel servicing equipment.		
(5) Close vent tank drain valve.		
(6) Install doors 141 L/R (A1-F18AC-LMM-000).		
(7) Turn on electrical power (A1-F18AC-LMM-000).		
(8) Operate aircraft engines (A1-F18AC-LMM-000).		
(9) On fuel check panel (door 8), set TK INTCON V CHK switch to CHK. Does TK 2V POS indicator light shown green?	f	k
f. Inspect no. 2 fuel tank pressure operated interconnect valve and related piping. Replace damaged components as required (A1-F18AC-460-300, WP011 01). Do step 1	-	-
g. Replace no. 3 fuel tank gravity feed check valve (A1-F18AC-460-300, WP115 02). Do step 1	-	-
h. Inspect no. 2 and no. 3 fuel tank dive vent check valves and related piping. Replace damaged components as required (A1-F18AC-460-300, WP156 00). Do step 1	-	-
i. Inspect no. 4 fuel tank dive vent check valve and related piping. Replace damaged components as required (A1-F18AC-460-300, WP156 00). Do step 1	-	-
j. Inspect no. 1 fuel tank dive vent check valve and related piping. Replace damaged components as required (A1-F18AC-460-300, WP156 00). Do step 1	-	-

**Table 3. Interconnect, Dive Vent Check and Gravity Feed
Check Valves Troubleshooting (Continued)**

Procedure	No	Yes
k. Inspect no. 1 fuel tank pressure operated interconnect valve and related piping. Replace damaged components as required (A1-F18AC-460-300, WP107 00). Do step 1.....	-	-
l. If disconnected, opened or removed during this procedure, make sure the items below are installed, closed or connected:		
(1) Doors 141L and 141R (A1-F18AC-LMM-010).		
(2) Vent tank drain valve (A1-F18AC-PCM-000).		
(3) Push individual tank precheck handle(s) up.		
(4) Rotate master precheck valve handle to DOWN OFF.		
(5) Refueling equipment (A1-F18AC-PCM-000)	-	-

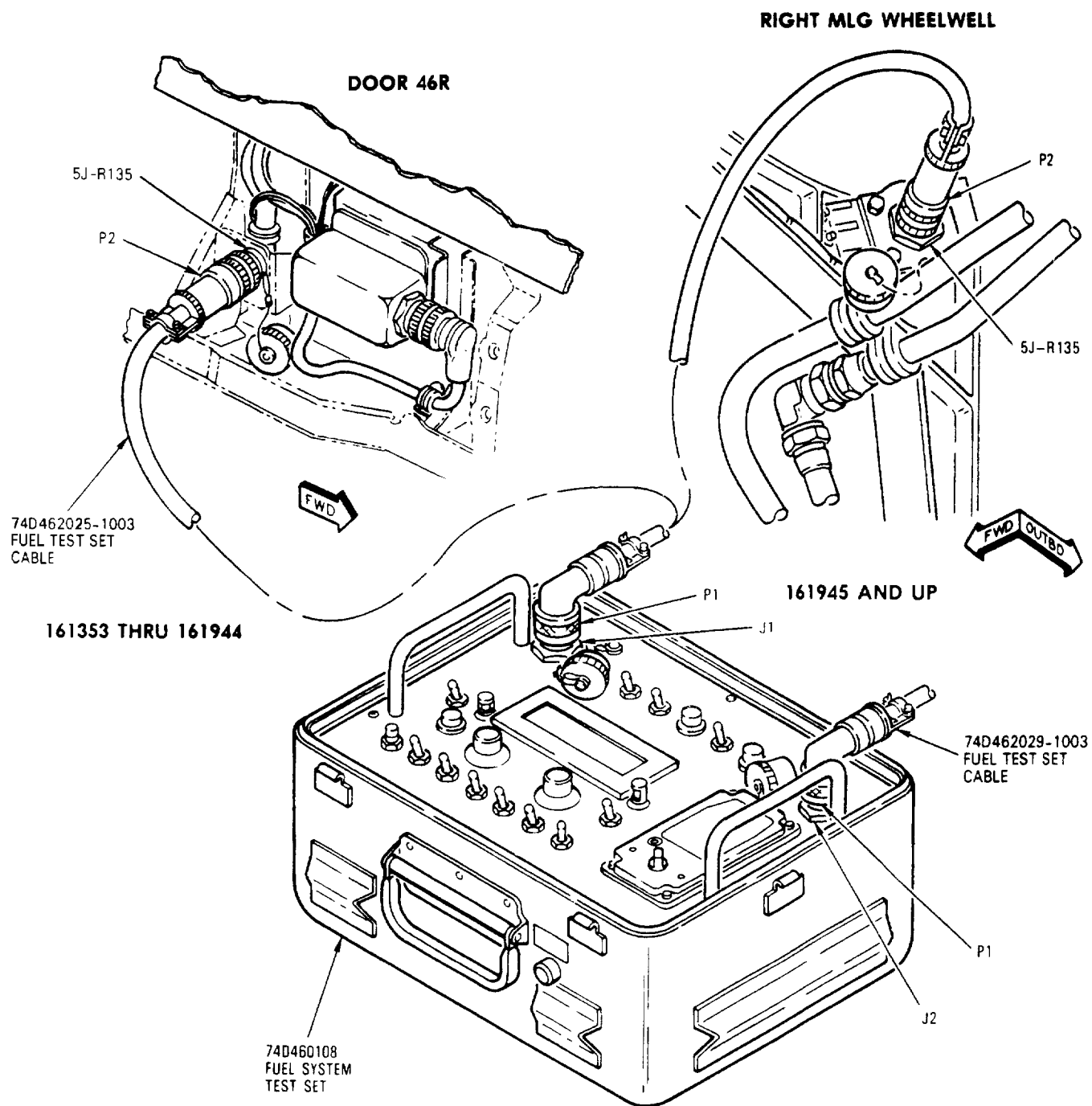
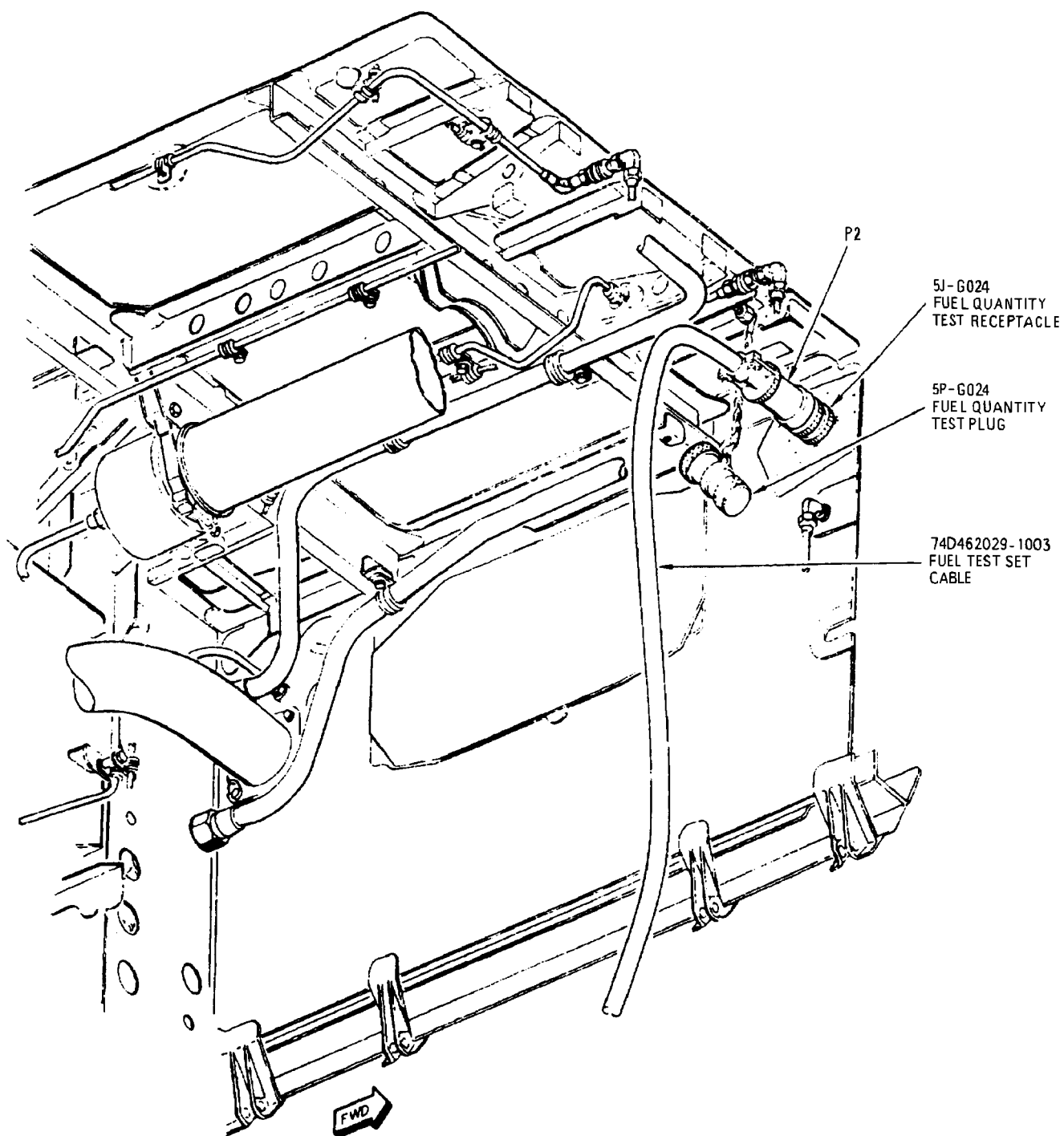


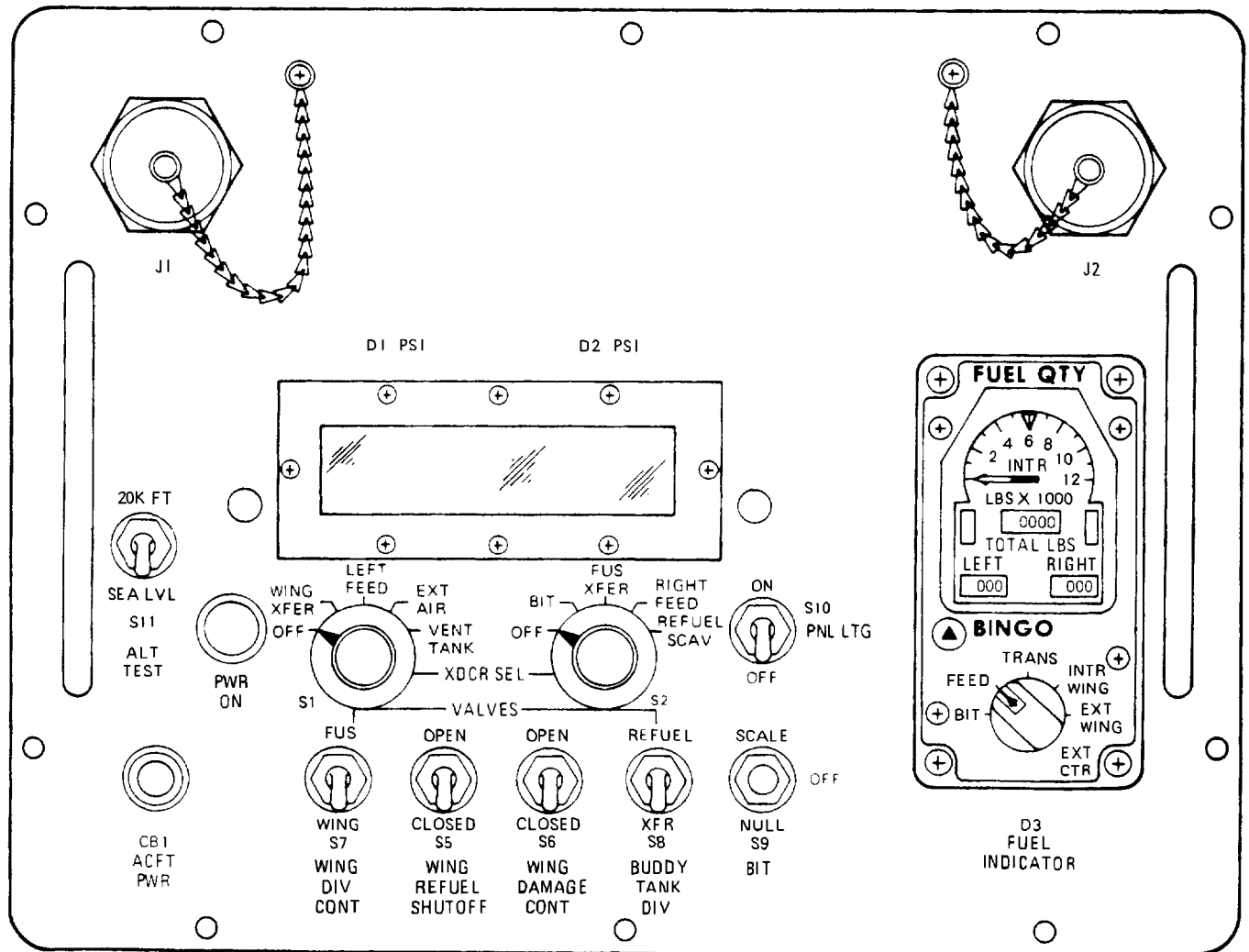
Figure 1. Fuel System Test Set Hookup (Sheet 1 of 2)



A
NOSE WHEELWELL, LEFT SIDE

02100102

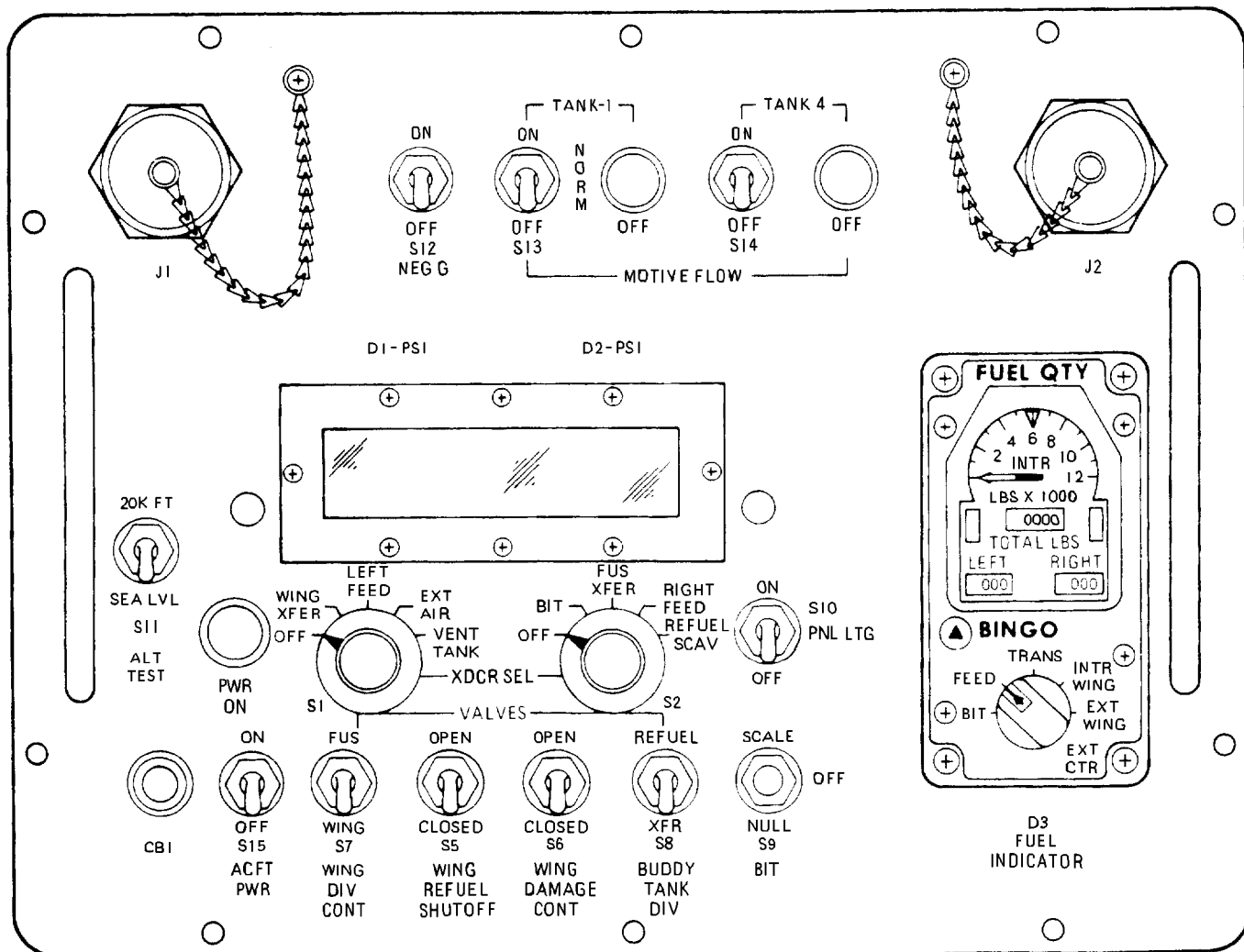
Figure 1. Fuel System Test Set Hookup (Sheet 2)



FUEL SYSTEM TEST SET 74D460108-1001

A

Figure 2. Fuel System Test Set Controls and Displays (Sheet 1 of 2)



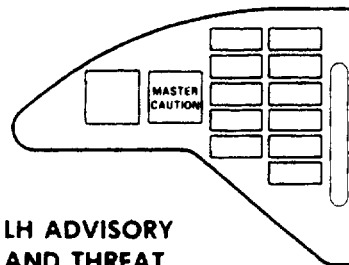
FUEL SYSTEM TEST SET 74D460108-1003

B

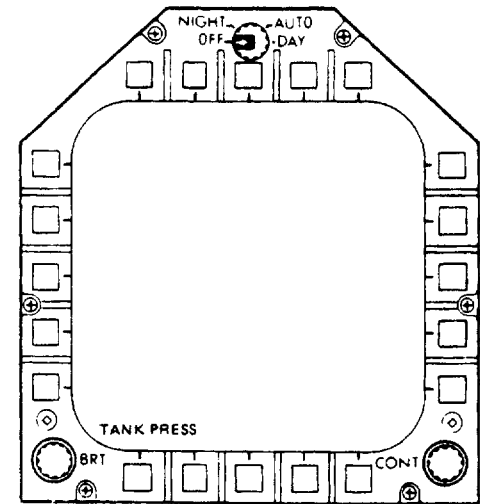
Figure 2. Fuel System Test Set Controls and Displays (Sheet 2)

LEGEND

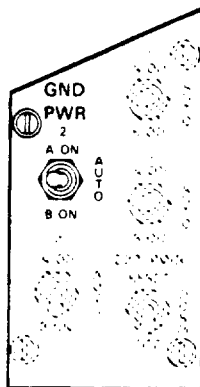
- 1 161353 THRU 161528 BEFORE
F/A-18 AFC 41
- 2 161702 AND UP ALSO 161353
THRU 161528 AFTER
F/A-18 AFC 41



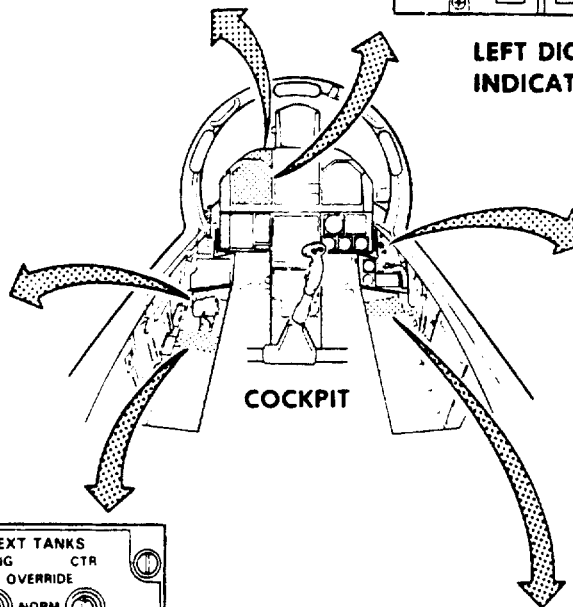
**LH ADVISORY
AND THREAT
WARNING INDICATOR
PANEL**



**LEFT DIGITAL DISPLAY
INDICATOR IP-1317()**



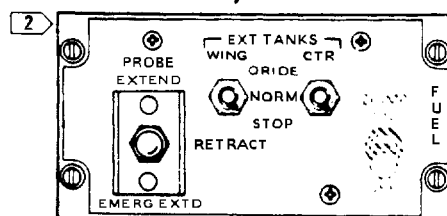
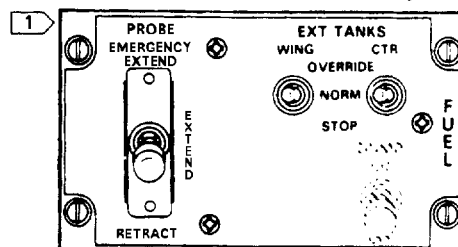
**GROUND POWER
CONTROL PANEL
ASSEMBLY**



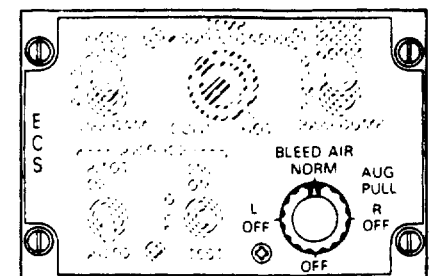
COCKPIT



**ARRESTING HOOK
CONTROL HANDLE**

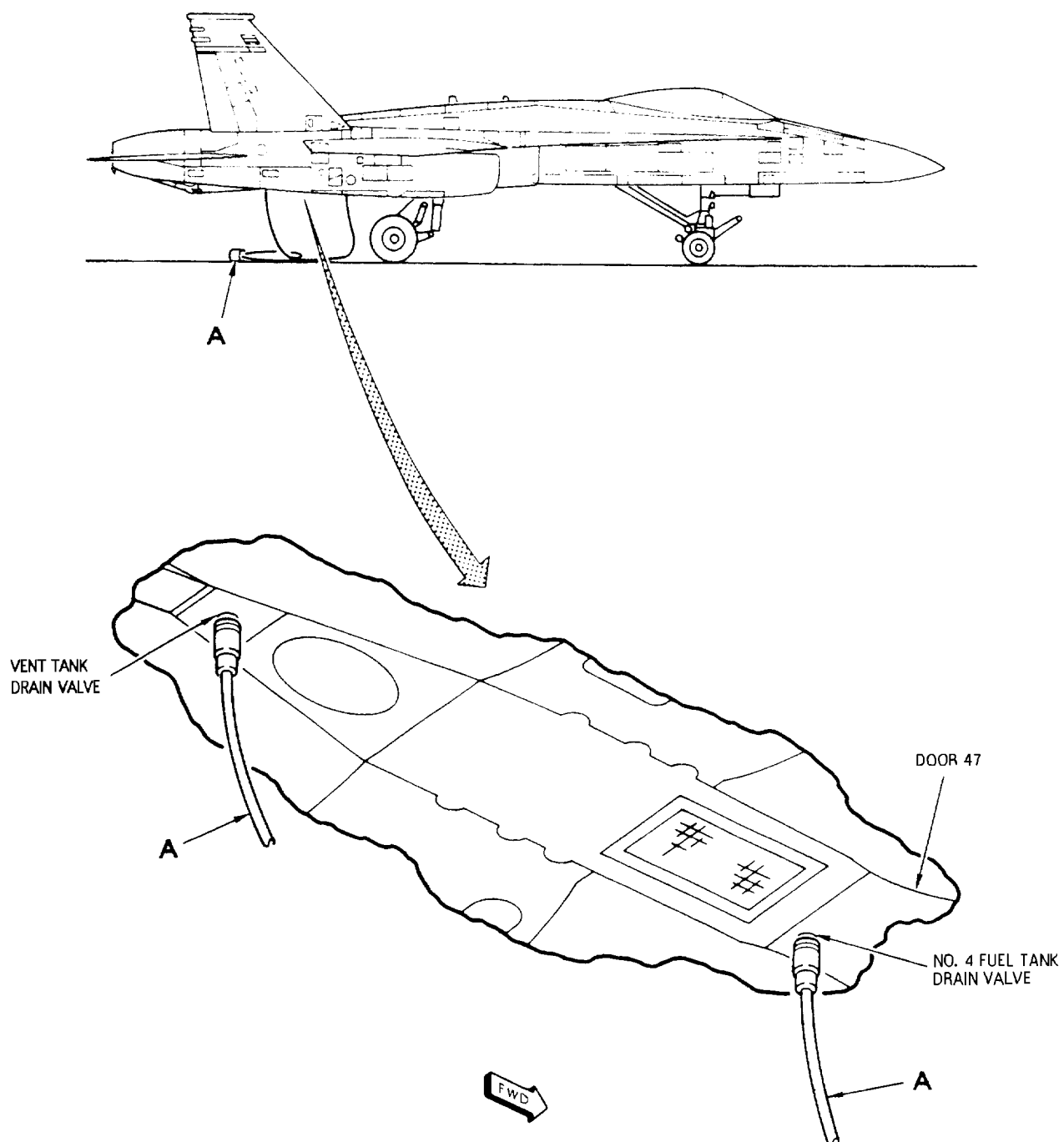


FUEL SYSTEM CONTROL PANEL



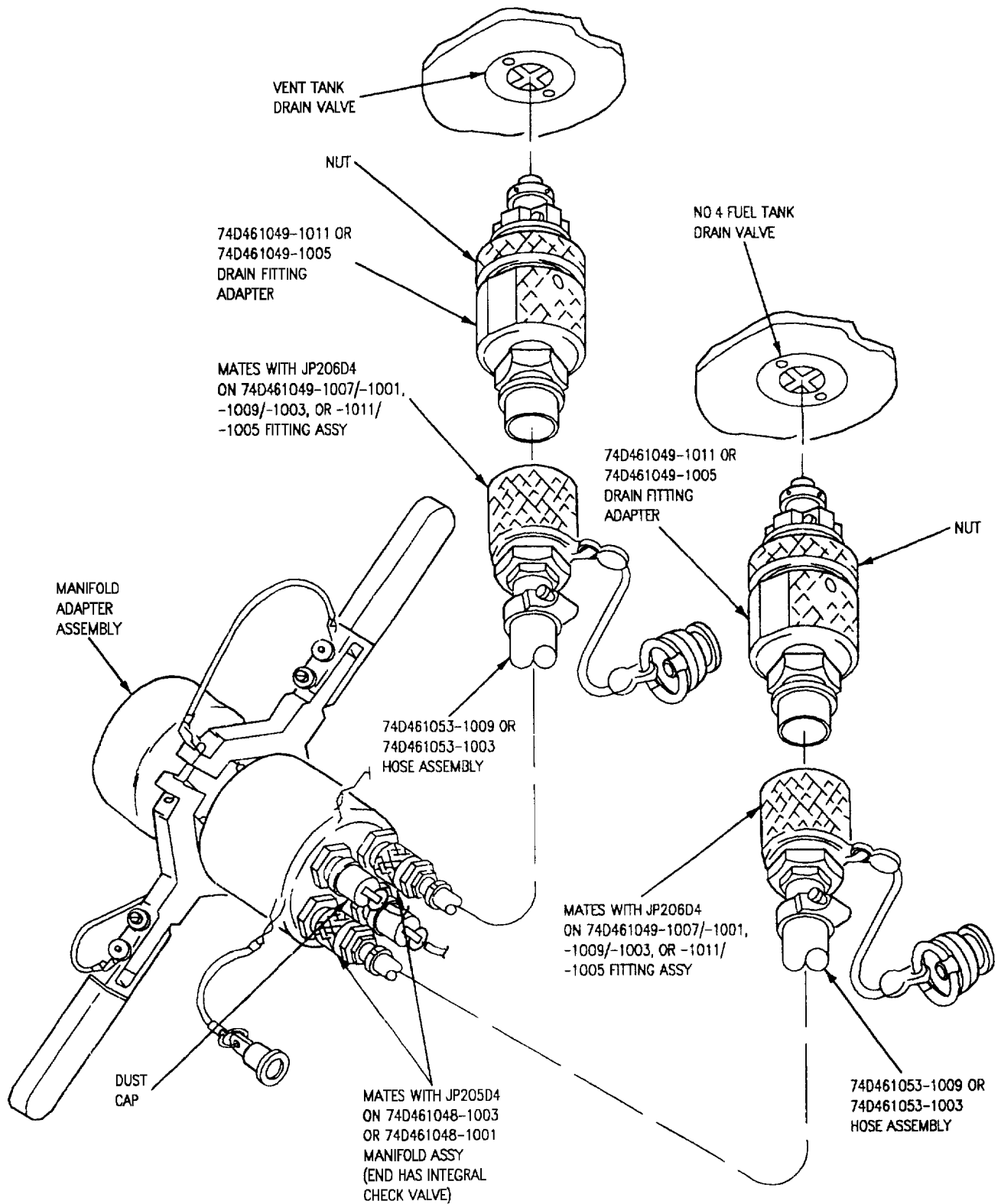
ECS PANEL ASSEMBLY

Figure 3. Fuel Pressurization and Vent System Test Component Locator



02100401

Figure 4. Vent Tank Scavenge Test Hookup (Sheet 1 of 2)



A

02100402

Figure 4. Vent Tank Scavenge Test Hookup (Sheet 2)

THIS PAGE INTENTIONALLY LEFT BLANK.

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
FUEL PRESSURIZATION AND VENT SYSTEM**

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Aircraft Vents Fuel, Table 7	15
High Internal Tank Pressure Below 20K Feet, Table 2	4
Internal Tanks Pressurized When Hook Control Handle Down, Table 3	6
Low Internal Tank Pressure Above 20K Feet, Table 4	8
No Internal Fuel Tank Pressure, Table 1	1
TANK PRESS Caution Not Displayed Above 20K Feet, Table 5	11
Tank Pressure With Aircraft Weight On Wheels, Table 6	13
Vent Failure Mode Examples, Figure 1	17

Record of Applicable Technical Directives

None

Table 1. No Internal Fuel Tank Pressure

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP023 00.	

Table 1. No Internal Fuel Tank Pressure (Continued)


Malfunction is caused by one of the items listed below:		
Aircraft Wiring Internal Air Pressurization Check Valve Internal Fuel Tanks Air Pressure Regulator No. 3 Relay Panel Assembly Wiring Pressurization System Air Pump 5K-C107 External Tank Refuel Control Relay 5VAT506 Bleed Air Check Valve 5VAT507 Bleed Air Check Valve 12K-E020 LMG WOW Relay		
Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. On proximity switch control unit, is LEFT GEAR switch set to WT OFF WHL?	b	c
b. Set LEFT GEAR switch to WT OFF WHL and continue procedure.	-	-
c. On the FUEL system control panel, set the EXT TANK CTR switch to OVERRIDE. On fuel system test, does display D1 indicate 0.25 to 1.00 psi?	d	e
d. On fuel system test set, set switch S1 to C - EXT TANK AIR PRESS. Does display D1 indicate 15 to 18 psi?	f	g
e. Isolate between 12K-E020 LMG WOW relay no. 4 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00)	-	-
f. Replace 5VAT506 bleed air check valve (A1-F18AC-460-300, WP151 00)	-	-
g. Do substeps listed below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		

Table 1. No Internal Fuel Tank Pressure (Continued)

Procedure	No	Yes
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 63R (A1-F18AC-LMM-010).		
(4) Disconnect 5P-T104 from internal fuel tank air pressure regulator.		
(5) Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-T104 pin 1 and a ground at pin 2?	h	i
h. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly (door 10L).		
(4) Does continuity exist from 52P-C159G pin 14 to 5P-T104 pin 1 and a ground exist at 5P-T104 pin 2?	j	k
i. Remove internal air pressurization check valve (A1-F18AC-460-300, WP152 00). Inspect check valve. Is check valve good?	l	m
j. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step r	-	-
k. Isolate between 5K-C107 external tank relay control relay and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00). If the 5K-C107 external tank refuel control relay was replaced, test the internal fuel tanks air pressure regulator coil resistance (this verifies the coil is not shorted causing damage to the 5K-C107 relay).		
Does 34 \pm 3 ohms exist from 5J-T104 pin 1 to 5J-T104 pin 2?	q	r
l. Replace internal air pressurization check valve (A1-F18AC-460-300, WP152 00) and do step r	-	-
m. Remove 5VAT507 bleed air check valve (A1-F18AC-460-300, WP153 00). Inspect check valve. Is check valve good?	n	o
n. Replace 5VAT507 bleed air check valve (A1-F18AC-460-300, WP153 00) and do step r	-	-
o. Do substeps listed below:		
(1) Remove door 63L (A1-F18AC-LMM-000).		
(2) Inspect pressurization system air pumps (A1-F18AC-460-300, WP150 00). Are pumps good?	p	q

Table 1. No Internal Fuel Tank Pressure (Continued)

Procedure	No	Yes
p. Replace pressurization system air pump (A1-F18AC-460-300, WP150 00) and do step r	-	-
q. Replace internal fuel tanks air pressure regulator (A1-F18AC-460-300, WP148 00) and do step r	-	-
r. If disconnected, opened, or removed during this procedure, make sure the items below are installed, closed, or connected:		
(1) Connectors 5P-T104, 52P-C159G		
(2) 5VAT507 bleed air check valve, internal air pressurization check valve		
(3) Doors 10L, 63L and 63R (A1-F18AC-LMM-000)	-	-

Table 2. High Internal Tank Pressure Below 20K Feet

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP023 00.	
Malfunction is caused by one of the items listed below:	
Air Pressure Switch Internal Fuel Tanks Air Pressure Regulator No. 8 Circuit Breaker/Relay Panel Assembly 5K-C103 20K FT Relay	

Table 2. High Internal Tank Pressure Below 20K Feet (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps listed below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 63R (A1-F18AC-LMM-010).		
(4) Make sure internal fuel tank air pressure regulator vent ports are not obstructed, then disconnect 5P-T104 from regulator.		
(5) Turn on electrical power (A1-F18AC-LMM-000). Does 28vdc exist at 5P-T104 pin 3?	b	c
b. Do substeps listed below:		
(1) Remove door 32R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002C, pin 17?	d	e
c. Replace the 5K-C103 20K FT relay in the no. 8 circuit breaker/relay panel assembly door 10L (A1-F18AC-420-300, WP030 00) and do step f	-	-
d. Replace the internal fuel tanks air pressure regulator (A1-F18AC-460-300, WP148 00) and do step g	-	-
e. Replace the air pressure switch (A1-F18AC-460-300, WP149 00) and do step g	-	-

Table 2. High Internal Tank Pressure Below 20K Feet (Continued)

Procedure	No	Yes
f. Test the internal fuel tanks air pressure regulator coil resistance (this verifies the coil is not shorted causing damage to the 5K-C103 20K FT relay).		
Does 34 ± 3 ohms exist from 5J-T104 pin 3 to 5J-T104 pin 4?	d	g
g. If disconnected or opened during this procedure, make sure the items below are connected or closed:		
(1) Connect 5P-T104 and 85P-N002C		
(2) Doors 32R, and 63R (A1-F18AC-LMM-000)	-	-

Table 3. Internal Tanks Pressurized When Hook Control Handle Down

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP023 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
Arresting Hook Control Handle	
No. 8 Circuit Breaker/Relay Panel Assembly Wiring	
5K-C107 External Tank Refuel Control Relay	

**Table 3. Internal Tanks Pressurized When Hook
Control Handle Down (Continued)**


Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps listed below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Get access to 19P-J003 connector (A1-F18AC-130-300, WP088 00).		
(4) Disconnect 19P-J003.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) Does 28vdc exist at 19P-J003 pin 13?	b	c
b. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from:		
52P-C159G pin 47 to 19P-J003 pin 13?	d	e
c. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		

Table 3. Internal Tanks Pressurized When Hook Control Handle Down (Continued)

Procedure	No	Yes
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C159G pin 58 to 19P-J003 pin 12?	d	f
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-
e. Isolate between 5CBC101 FUEL T PRESS circuit breaker and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step i	-	-
f. Inspect the 5K-C107 external tank refuel control relay and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00). Is relay and wiring good?	g	h
g. Replace 5K-C107 external tank refuel control relay or repair no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step i	-	-
h. Replace the arresting hook control handle (A1-F18AC-130-300, WP088 00) and do step i	-	-
i. If disconnected, opened, or removed during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connect 19P-J003 and 52P-C159G		
(2) Install 5K-C107 external tank refuel control relay		
(3) Close door 10L (A1-F18AC-LMM-010)	-	-

Table 4. Low Internal Tank Pressure Above 20K Feet

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 4. Low Internal Tank Pressure Above 20K Feet (Continued)

NOTE		
<p>Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.</p> <p>For component location, refer to figure 1, WP023 00.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Internal Fuel Tanks Air Pressure Regulator 5K-C103 20K FT Relay No. 8 Circuit Breaker/Relay Panel Assembly</p>		
Procedure	No	Yes
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps listed below:		
(1) Shut down engines (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 63R (A1-F18AC-LMM-010).		
(4) Disconnect 5P-T104 from internal fuel tank air pressure regulator.		
(5) Turn on electrical power (A1-F18AC-LMM-000).		
(6) On fuel system test set, set and hold S11 switch to 20K FT. Does 28vdc exist at 5P-T104 pin 3 and a ground at pin 4?	b	c

Table 4. Low Internal Tank Pressure Above 20K Feet (Continued)

Procedure	No	Yes
b. Do substeps listed below: (1) Open doors 10L and 13R (A1-F18AC-LMM-010). (2) Turn off electrical power (A1-F18AC-LMM-000). (3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly. (4) Disconnect test cable P2 from 5J-G024. (5) Disconnect 70P-F001B from Air Data Computer CP-1334/A. (6) Does continuity exist from: 70P-F001B pin 80 to 5J-G024 pin 4 70P-F001B pin 80 to 52P-C159G pin 33 5P-T104 pin 3 to 52P-C159G pin 23?	d	e
c. Is "Tube P/N 74A586733 inspected for chafing" entered in aircraft logbook?	d	g
d. Do substeps listed below: (1) Remove right side hydraulic reservoir (A1-F18AC-450-300, WP005 00). (2) Using a flashlight and a mirror, inspect tube, P/N 74A586733, (A1-F18AC-PIM-010, WP060 00, item 13) for chafing against fuel barrier web stiffener and/or rivet. (3) Enter "Tube P/N 74A586733 inspected for chafing" in aircraft logbook. (4) Is tube chafing?	g	e
e. Do substeps listed below: (1) Remove and replace tube, P/N 74A586733, per A1-F18AC-PIM-010, WP060 00. (2) Install right side hydraulic reservoir (A1-F18AC-450-300, WP005 00) (3) Has the chafed area penetrated the I.D of the tube?	g	f
f. Do substeps listed below: (1) Connect 5P-T104 to internal fuel tank air pressure regulator. (2) Turn electrical power (A1-F18AC-LMM-000). (3) Repeat WP021 00, Table 1, paragraphs 5b through 5g. (4) Does paragraph 5g show normal indication?	g	j

Table 4. Low Internal Tank Pressure Above 20K Feet (Continued)

Procedure	No	Yes
g. Replace the internal fuel tanks air pressure regulator (A1-F18AC-460-300, WP148 00) and do step j	-	-
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j	-	-
i. Isolate between the 5K-C103 20K FT relay and the no. 8 circuit breaker/relay panel assembly (A1-F18AC-420-300, WP030 00) and do step j	-	-
j. If disconnected or opened during this procedure, make sure the items below are connected and closed:		
(1) Connect 5P-T104, 52P-C169G, to 70P-F001B		
(2) Doors 13R, 63R and 10L (A1-F18AC-LMM-010)	-	-

Table 5. TANK PRESS Caution Not Displayed Above 20K Feet

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP023 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
Air Pressure Switch	

Table 5. TANK PRESS Caution Not Displayed Above 20K Feet (Continued)

Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do substeps listed below:		
(1) Shut down engines (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove door 63R (A1-F18AC-LMM-010).		
(4) Disconnect 5P-T106 from air pressure switch.		
(5) Remove door 32R (A1-F18AC-LMM-010).		
(6) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(7) Does continuity exist from 5P-T106 pin A to 85P-N002C pin 17?	b	c
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step d	-	-
c. Replace the air pressure switch (A1-F18AC-460-300, WP149 00) and do step d	-	-
d. Do substeps listed below:		
(1) Connect 85P-N002C and 5P-T106.		
(2) Install door 32R and 63R (A1-F18AC-LMM-010)	-	-

Table 6. Tank Pressure With Aircraft Weight On Wheels


Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP023 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring FUEL System Control Panel No. 3 Relay Panel Assembly 12K-E020 LMG WOW Relay No. 4		
Procedure	No	Yes
<div></div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 6. Tank Pressure With Aircraft Weight On Wheels (Continued)

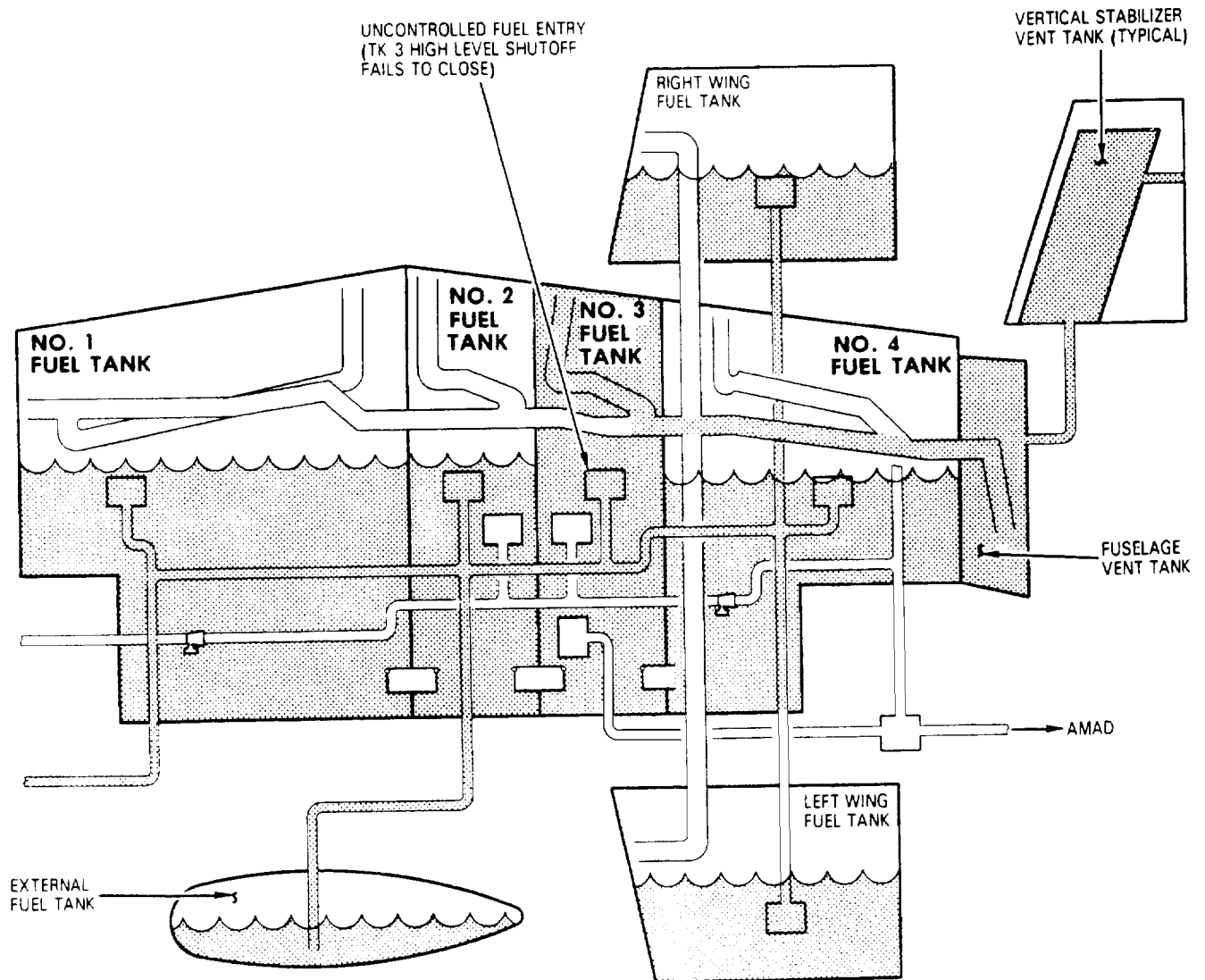
Procedure	No	Yes
a. Do substeps listed below:		
(1) Shut down engine or APU (A1-F18AC-LMM-000).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 5P-H027 pin 20?	b	c
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
c. On FUEL system control panel does continuity exist from 5J-H027 pin 20 to 5J-H027 pin 24?	d	e
d. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step g	-	-
e. Do substeps listed below:		
(1) Open door 13L and 10L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-E059 from no. 3 relay panel assembly (door 13L).		
(3) Disconnect 52P-C159G from no. 8 circuit breaker/relay panel assembly (door 10L).		
(4) Does continuity exist from:		
52P-E059 pin 39 to 52P-C159G pin 58		
52P-E059 pin 63 to 5P-H027 pin 24?	b	f
f. Isolate between 12K-E020 LMG WOW relay no. 4 and no. 3 relay panel assembly (A1-F18AC-420-300, WP035 00) and do step g	-	-
g. If disconnected, opened, or removed during this procedure, make sure the items below are installed, closed, or connected:		
(1) Connector 52P-E059 and 52P-C159G		
(2) FUEL system control panel (A1-F18AC-460-300, WP104 00)		
(3) Doors 10L and 13L (A1-F18AC-LMM-010)	-	-

Table 7. Aircraft Vents Fuel

Support Equipment Required		
None		
Materials Required		
None		
NOTE		
<p>Refuel/Defuel System Schematic, (A1-F18AC-460-500, WP004 00), External Fuel System Schematic (A1-F18AC-460-500, WP006 00) and Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.</p> <p>Fuel venting malfunctions are the result of uncontrolled fuel entry into a fuel tank. Troubleshooting is directed at determining the fuel source. Refer to Vent Failure Mode Examples (fig 1) for typical failures.</p> <p>Malfunction is caused by one of the items listed below:</p> <ul style="list-style-type: none"> Fuel Dump System Fuel Pressurization System Refuel System Transfer System Vent Tank Scavenge System 		
Procedure	No	Yes
a. Did aircraft vent fuel during flight, only in a climb attitude?	b	l
b. Did aircraft vent fuel inflight with external tanks transferring, then stop venting with EXT TANKS switch set to STOP?	c	m
c. Did aircraft vent fuel inflight with external tanks transferring, and continue venting with EXT TANKS switch set to STOP?	d	n
d. Did aircraft vent fuel during hot refueling?	e	o
NOTE		
If required, defuel aircraft (A1-F18AC-PCM-000) before doing step e.		
e. Refuel aircraft with electrical power (A1-F18AC-PCM-000). Did aircraft pass precheck during refueling, but vents fuel at normal high level shutoff?	j	g
f. Is maintenance code 941 displayed on nose wheelwell Digital Display Indicator ID-2150/ASM-612 (fuel dump open when commanded closed)?	k	i
g. Do Individual Fuel Tank High Level Shutoff Test (table 6, WP003 01)	-	-

Table 7. Aircraft Vents Fuel (Continued)

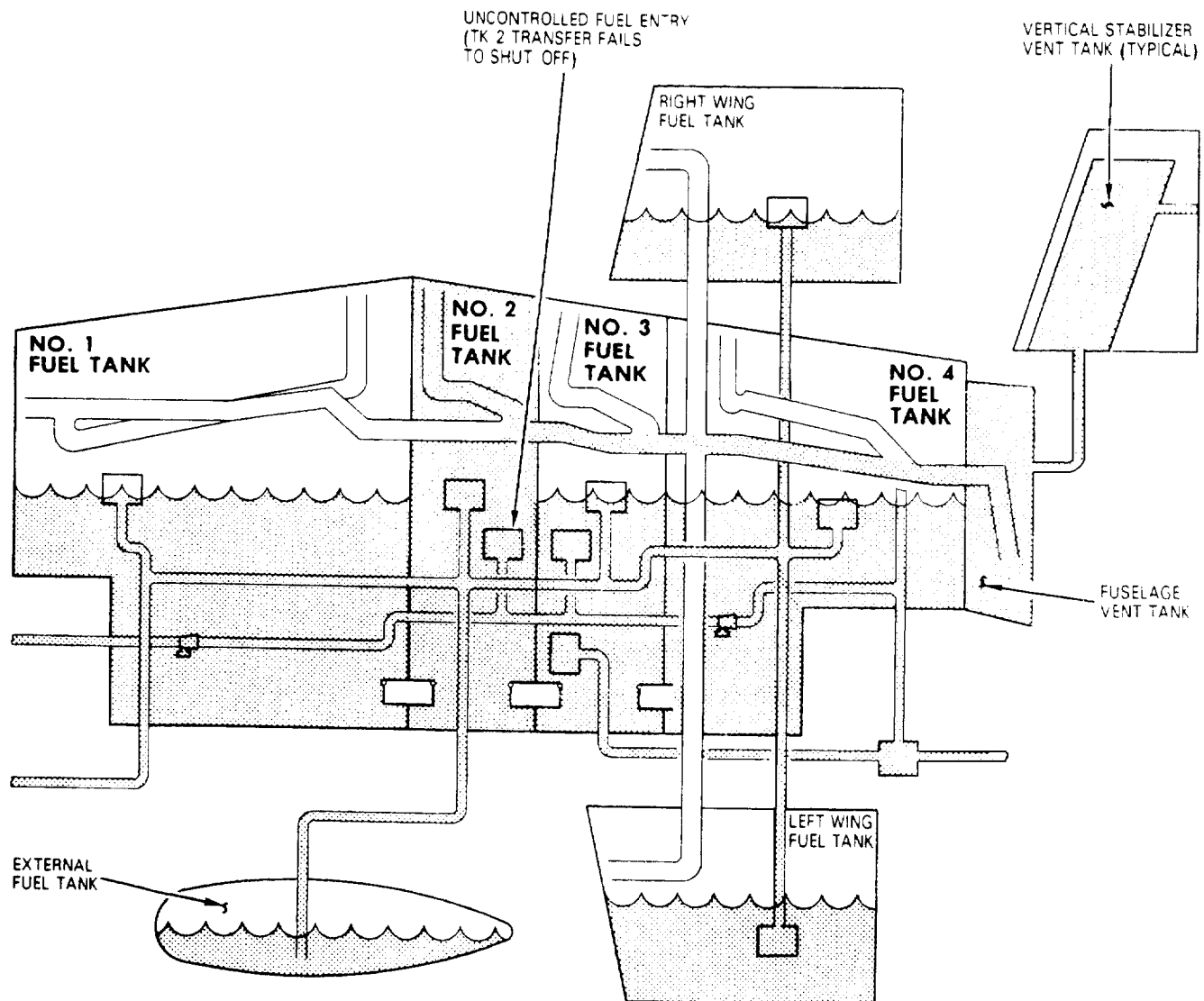
Procedure	No	Yes
h. With engines operating (A1-F18AC-LMM-000), verify fuel system is not pressurized with Weight-On-Wheels. This can be done by observing fuel ports on vertical stabilizers or monitoring cockpit Left Digital Display Indicator IP-1317/() for TANK PRESS caution. Is fuel system pressurized?	p	f
i. Do table 1, WP022 02, and do step p	-	-
j. Do procedures as listed below until malfunction is isolated, then do step p.		
(1) Verify refuel/defuel valves and plumbing. Do table 2, Refuel/Defuel System Pressure Test (Internal Tanks), WP003 00.		
(2) Verify transfer system valves and plumbing. Do table 1, Transfer Leak Test, WP012 02.		
<p style="text-align: center;">NOTE</p> <p>On an aircraft that has just been refueled (full) and engine/s started; recirculation fuel enters the wings, spills out the open wing vents into the vent tank. Vent tank fuel is then scavenged back to the feed tanks. Approximately 400 lb of fuel must be consumed before recirculation fuel does not enter the vent tank. If the fuel system is pressurized and the vent tank scavenge system has malfunctioned, fuel venting will occur.</p>		
(3) Verify right and left side vent tank scavenge systems. Do Table 2, Vent Tank Scavenge Test, A1-F18AC-460-200, WP021 00	-	-
k. Do table 6, Tank Pressure With Aircraft Weight-On-Wheels, and do step p	-	-
l. Do table 3, WP021 00	-	-
m. Isolate to a failed refuel component. Refuel and precheck aircraft (A1-F18AC-PCM-000), then do table 2, WP003 00	-	-
n. Do table 4, WP009 00, then do step e	-	-
o. If venting does not occur during refueling without engines operating, isolate failed transfer system component. Do table 1, WP012 02. If venting occurs during refueling without engines operating, do step e	-	-
p. Make sure all components disconnected, opened, or removed while doing previous procedures are installed, connected, or closed and shutdown engines (if engines were operating) (A1-F18AC-LMM-000)	-	-



REFUEL SYSTEM FAILURE EXAMPLE

REFUELING WITHOUT ENGINE OPERATING
ALL TANKS FILL. TANK 3 AND VENT
SYSTEM OVERFILL.

Figure 1. Vent Failure Mode Examples (Sheet 1 of 5)

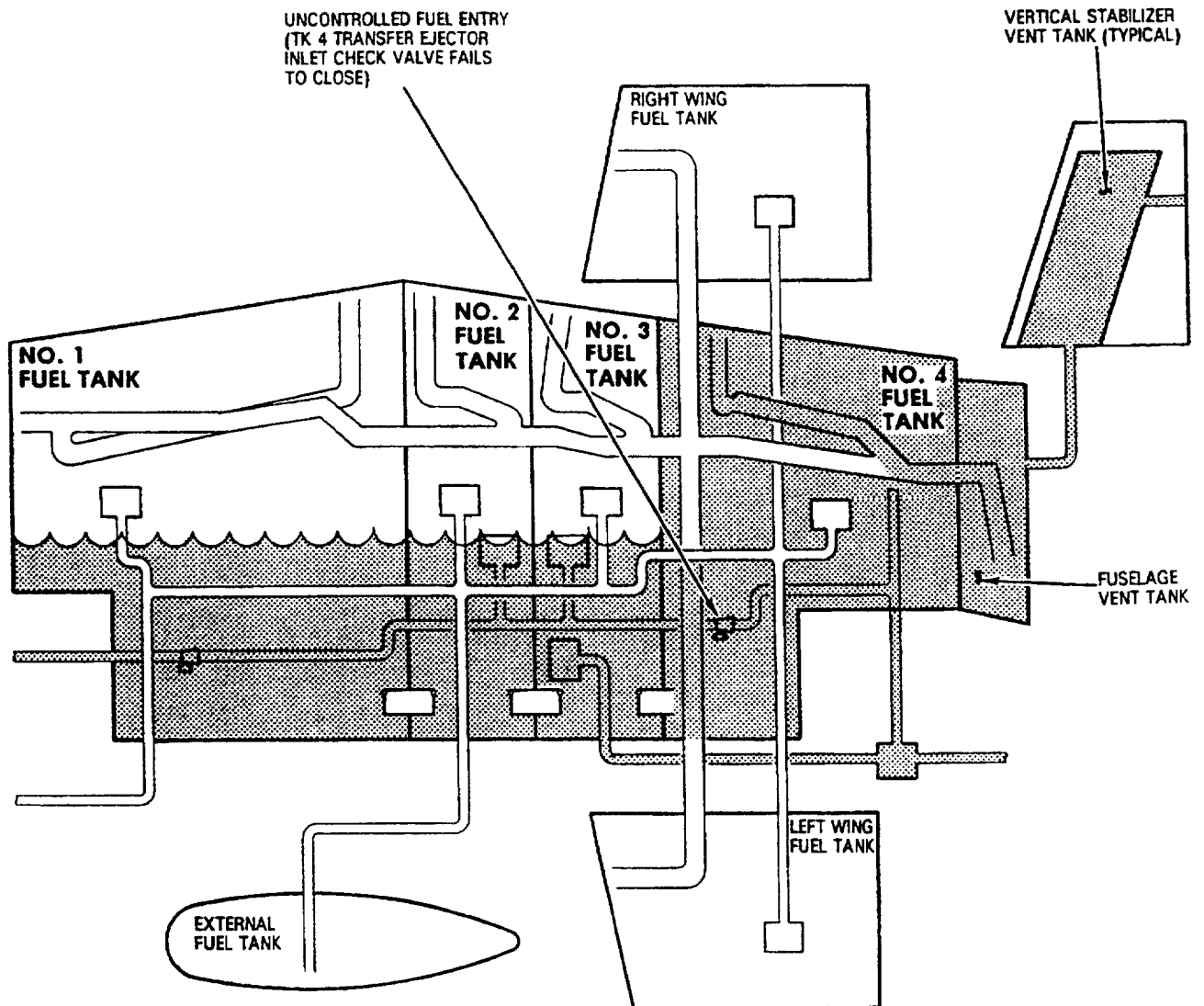


TRANSFER SYSTEM FAILURE EXAMPLE 1

HOT REFUELING ALL TANKS FILL
TANK 2 AND VENT SYSTEM OVERFILL.
(AVOIDABLE BY OBSERVING FUEL
QTY INDICATOR DURING REFUELING
AND OBSERVING FEED TANKS.
A1-F18AC-PCM-000).

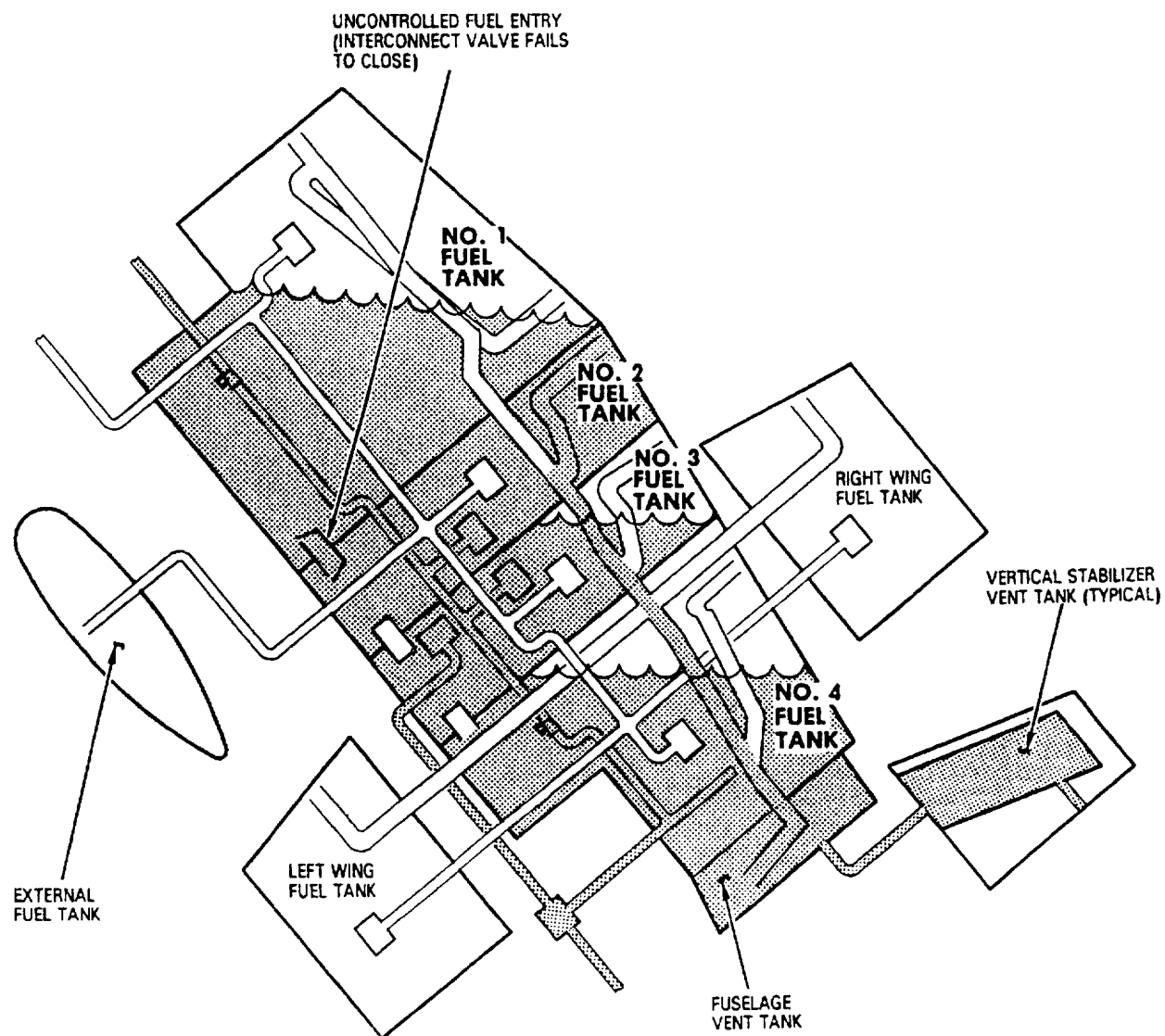
02200102

Figure 1. Vent Failure Mode Examples (Sheet 2)

**TRANSFER SYSTEM FAILURE EXAMPLE 2**

AIRBORNE. MOTIVE FLOW FUEL
OVERFILLS TK 4 AND VENT SYSTEM.

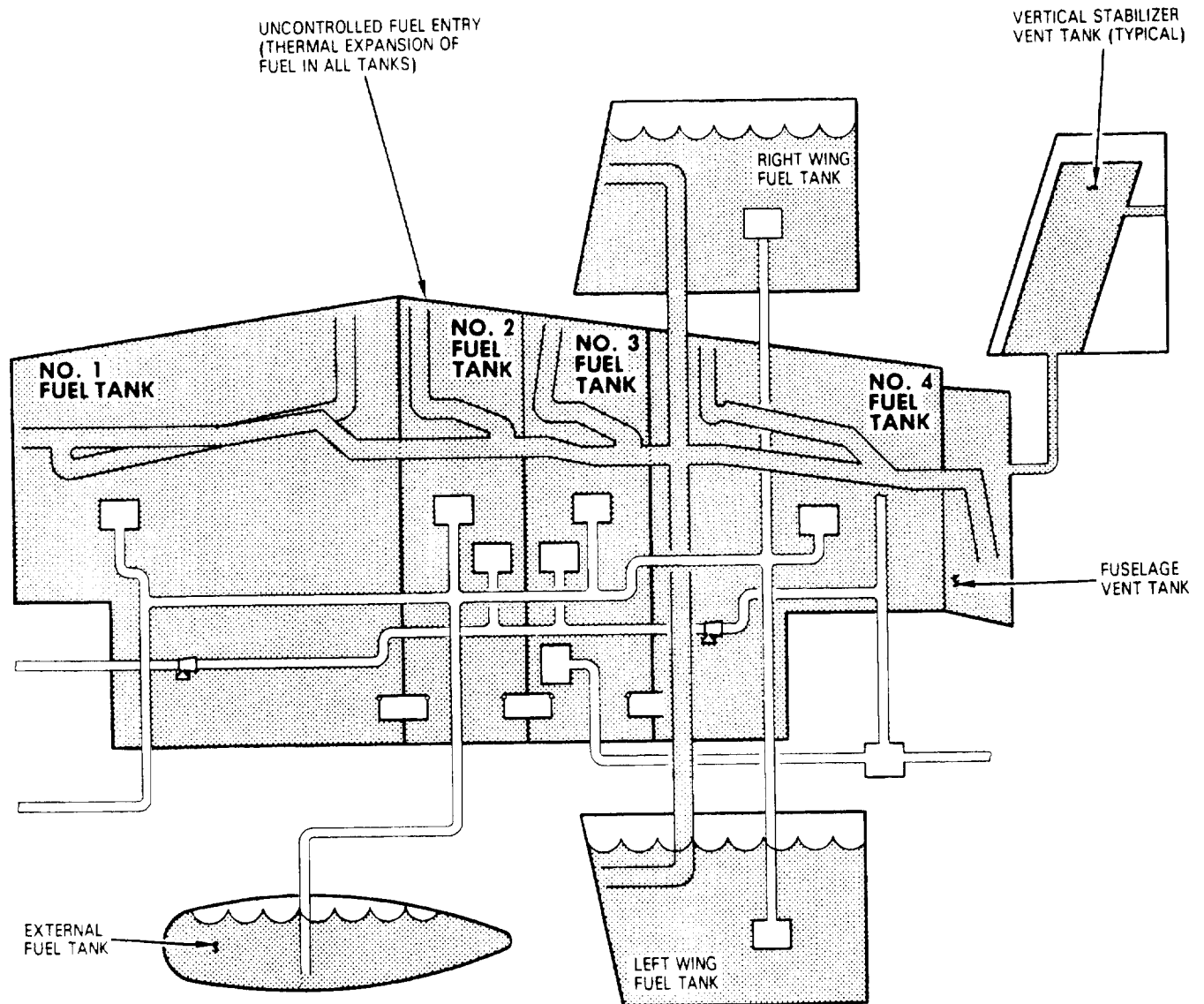
Figure 1. Vent Failure Mode Examples (Sheet 3)

**TRANSFER SYSTEM FAILURE EXAMPLE 3**

CLIMB ATTITUDE. TK 1 GRAVITY FEEDS
TK 2. TK 2 AND VENT SYSTEM OVERFILL

02200104

Figure 1. Vent Failure Mode Examples (Sheet 4)



VENT (SCAVENGE) SYSTEM FAILURE EXAMPLE

UNSCAVENGED (THERMAL EXPANSION) FUEL
FILLS VENT TANK. VENTS AT TAKEOFF

Figure 1. Vent Failure Mode Examples (Sheet 5)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING PART II
FUEL PRESSURIZATION AND VENT SYSTEM

Reference Material

Fuel System A1-F18AC-460-300

Alphabetical Index

Subject	Page No.
Fuel Leaking From Vent Tank Cavity Drain, Table 1	1
Vent Tank Does Not Scavenge, Table 2	3
Vent Tank Scavenge Test Troubleshooting Component Locator, Figure 1	5
Wrong Test Set Indications, Table 3	4

Record of Applicable Technical Directives

None

Table 1. Vent Tank Does Not Scavenge

Support Equipment Required
None
Materials Required
None
NOTE
Internal Fuel Tank System Schematic (A1-F18AC-460-500, WP007 00) may be used while doing this test.
For component location, refer to figure 1.
If vent tank failed left scavenge test, replace or inspect left side components. If vent tank failed right scavenge test, replace or inspect right side components.
Malfunction is caused by one of the items below:
Motive flow tube
No. 4 Fuel Tank Vent Scavenge Jet Ejector
Vent Tank Scavenge Check Valve

Table 1. Vent Tank Does Not Scavenge (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Remove no. 4 fuel tank vent scavenge jet ejectors (A1-F18AC-460-300, WP125 00).		
(2) Is motive flow tube clogged or damaged?	b	e
b. Is ejector clogged or damaged?	d	c
c. Replace no. 4 fuel tank vent scavenge jet ejector (A1-F18AC-460-300, WP125 00).	-	-
d. Is scavenge pickup tube installed correctly?	f	g
e. Replace motive flow tube (A1-F18AC-460-300, WP125 00)	-	-
f. Correct as required (A1-F18AC-460-300, WP125 00).	-	-
g. Do substeps below:		
(1) Reinstall no. 4 fuel tank vent scavenge jet ejectors and related tubing (A1-F18AC-460-300, WP125 00).		
(2) Is the vent tank scavenge pump inlet screen and scavenge pump inlet tube (A1-F18AC-460-300, WP127 00) clogged or damaged?	h	i
h. Replace vent tank scavenge check valve (A1-F18AC-460-300, WP126 00)	-	-
i. Replace components as required (A1-F18AC-460-300, WP127 00)	-	-

Table 2. Wrong Test Set Indications

Support Equipment Required		
Part Number or Type Designation	Nomenclature	
—	External Air Source (20 to 40 psi)	
Materials Required		
Specification or Part Number	Nomenclature	
TT-I-735, Grade A (CAGE 81348)	Isopropyl Alcohol	
CCCC440TY1CL1 (CAGE 81348)	Cheesecloth	
Malfunction is caused by one of the items listed below:		
Test Set Test Set Receptacle Contamination		
Procedure	No	Yes
<div>NOTE</div> <p>Fuel system test set receptacles J1 and J2 are subject to foreign particles which could cause shorting of pins.</p> <p>a. Clean receptacles J1 and J2 per substeps below:</p> <div>WARNING</div> <p>Isopropyl alcohol is highly flammable and toxic. Do not use near open flame or sparks. Use only in well ventilated areas.</p> <p>(1) Clean receptacles with cheesecloth moistened with isopropyl alcohol.</p> <div>WARNING</div> <p>To prevent injury to personnel, do not direct compressed air against skin.</p> <p>(2) Blow loose foreign particles from receptacles using dry, filtered, low pressure (20 to 40 psi) air.</p> <p>(3) If test set malfunction still exists, replace test set</p>		

Table 3. Fuel Leaking From Vent Tank Cavity Drain

<div>Support Equipment Required</div> <div>None</div> <div>Materials Required</div> <div>None</div>		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <div><div>1. Pin to pin test per procedural step.</div><div>2. Shorts to ground.</div><div>3. Shorts between surrounding pins on connectors.</div><div>4. Shorts between shield and conductors.</div><div>5. Shield continuity.</div></div>		
a. Do substeps below:		
(1) Remove door 63R (A1-F18AC-LMM-010).		
(2) Disconnect upper metal overboard regulator vent tube assembly from internal fuel tanks air pressure regulator (A1-F18AC-460-300, WP148 00). Is fuel in vent tube?	c	b
b. Replace internal fuel tanks air pressure regulator (A1-F18AC-460-300, WP148 00)	-	-
c. Replace vent tank (A1-F18AC-460-300, WP031 00 and WP032 00)	-	-

NOTE

FOR PARTS DATA INFORMATION
REFER TO A1-F18AC-460-300,
WP028 00.

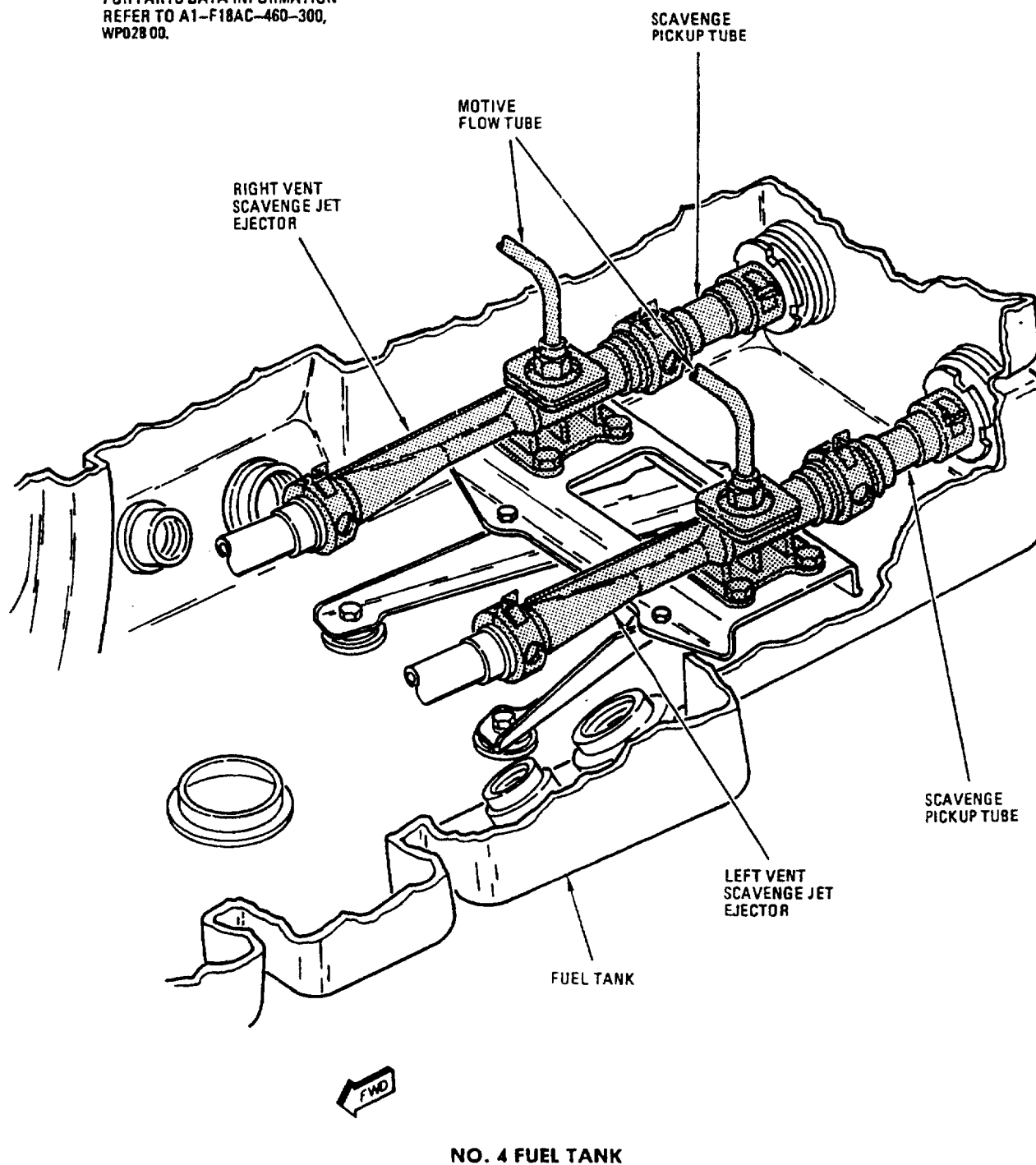
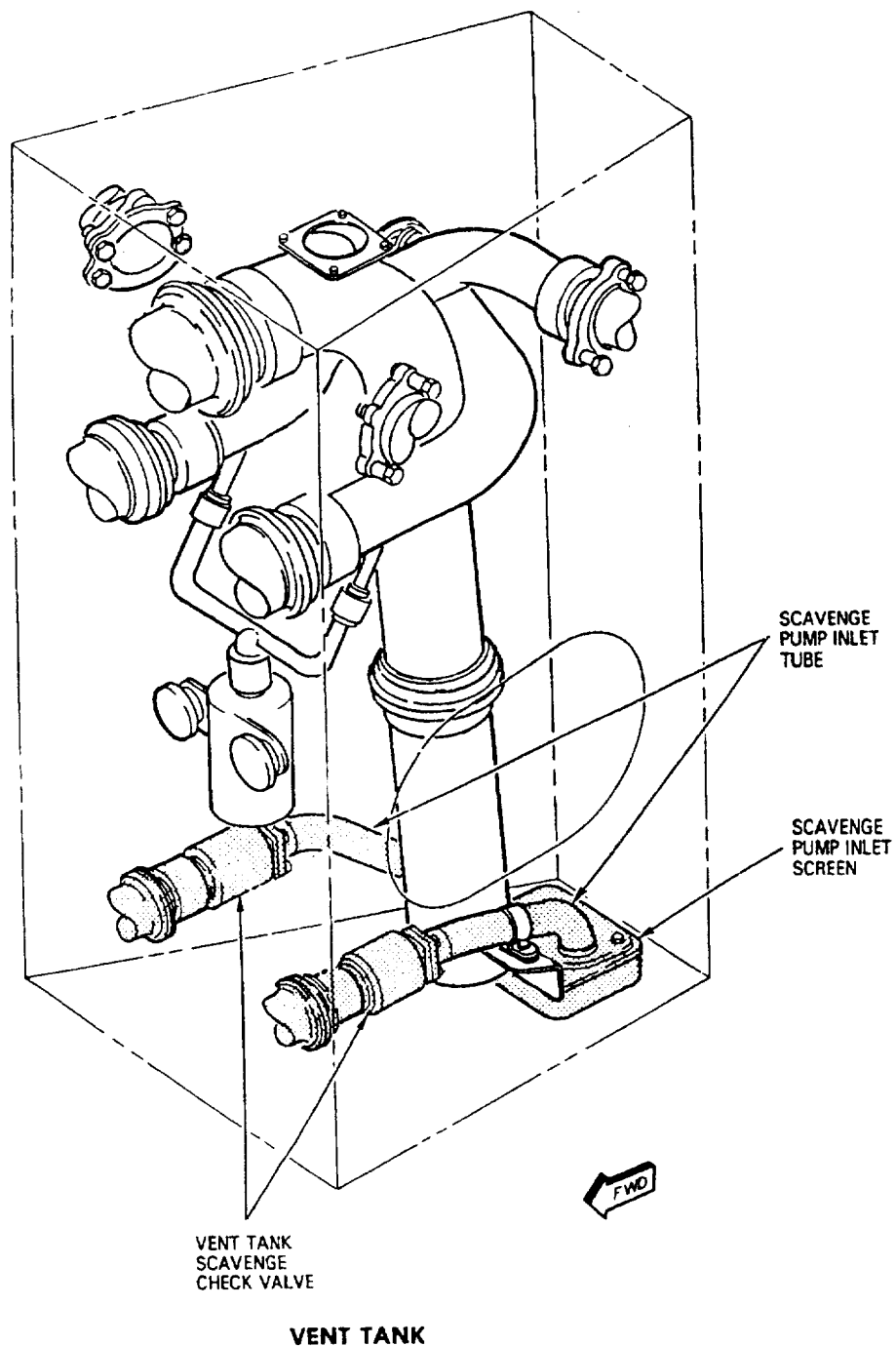


Figure 1. Vent Tank Scavenge Test Troubleshooting
Component Locator (Sheet 1 of 2)

NOTE

FOR PARTS DATA INFORMATION
REFER TO A1-F18AC-460-300,
WP033 00.



**Figure 1. Vent Tank Scavenge Test Troubleshooting
Component Locator (Sheet 2)**

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
FUEL DUMP SYSTEM

Reference Material

Fuel System	A1-F18AC-460-500
Fuel Dump System	WP009 00
Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Code 41, Table 1	1

Record of Applicable Technical Directives

None

Table 1. Code 941

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**
260-6XLP
(AN/USM-311)

Nomenclature
Multimeter

Materials Required

None

NOTE

Fuel Dump System Schematic (A1-F18AC-460-500, WP009 00) may be used as an aid when doing this procedure.

For component locator, refer to A1-F18AC-460-500, WP009 00.

Table 1. Code 941 (Continued)

Malfunction is caused by one of the items below: Aircraft Wiring Fuel Dump Valve FUEL System Control Panel No. 5 Circuit Breaker Panel Assembly		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do substeps below:		
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) On no. 5 circuit breaker panel assembly, make sure FUEL DUMP circuit breaker 5CBD063 (zone A9) is closed.		
(3) Open door 49 (A1-F18AC-LMM-010).		
(4) Apply electrical power (A1-F18AC-LMM-000).		
(5) Observe position indicator on dump valve. On FUEL system control panel, set DUMP switch to ON and hold until position indicator moves to OPEN. Release DUMP switch.		
(6) Does position indicator move to CLOSE?	b	c
b. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove FUEL system control panel (A1-F18AC-460-300, WP104 00).		
(3) Does continuity exist from FUEL system control panel receptacle pin 19 to pin 26?	d	e

Table 1. Code 941 (Continued)

Procedure	No	Yes
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 32R (A1-F18AC-LMM-010).		
(3) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(4) Disconnect 5P-P069 from fuel dump valve (door 49).		
(5) Does continuity exist from:		
5P-P069 pin 8 to 85P-N002A pin 59		
5P-P069 pin 5 to aircraft ground?	f	g
d. Replace FUEL system control panel (A1-F18AC-460-300, WP104 00) and do step j	-	-
e. Do substeps below:		
(1) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly (door 10R).		
(2) Turn on electrical power (A1-F18AC-LMM-000).		
(3) Does 28vdc exist from 52J-D092C pin 16 to aircraft ground?	h	i
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j	-	-
g. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If malfunction still exists, replace fuel dump valve motor assembly (A1-F18AC-460-300, WP141 00) and do step j	-	-
h. Isolate between no. 5 circuit breaker panel assembly wiring and 5CBD063 FUEL DUMP circuit breaker (A1-F18AC-420-300, WP026 00) and do step j	-	-
i. Do substeps below:		
(1) Disconnect 5P-P069 from fuel dump valve (door 49).		
(2) Does continuity exist from:		
52P-D092C pin 16 to 5P-H027 pin 26		
5P-H027 pin 19 to 5P-P069 pin 7		
5P-P069 pin 12 to ground?	f	g

Table 1. Code 941 (Continued)

Procedure	No	Yes
j. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 5P-P069		
(2) 52P-D092C		
(3) 85P-N002A		
(4) FUEL system control panel		
(5) Door 10R		
(6) Door 32R		
(7) Door 49	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
FUEL PRESSURIZATION AND VENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Fuel Pressurization and Vent System Component Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Jul 86	—
F/A-18 AFC 41	—	Throttle Thrust Sensitivity, Reduction of (ECP MDA-F/A-18-00054C1)	1 Oct 86	—

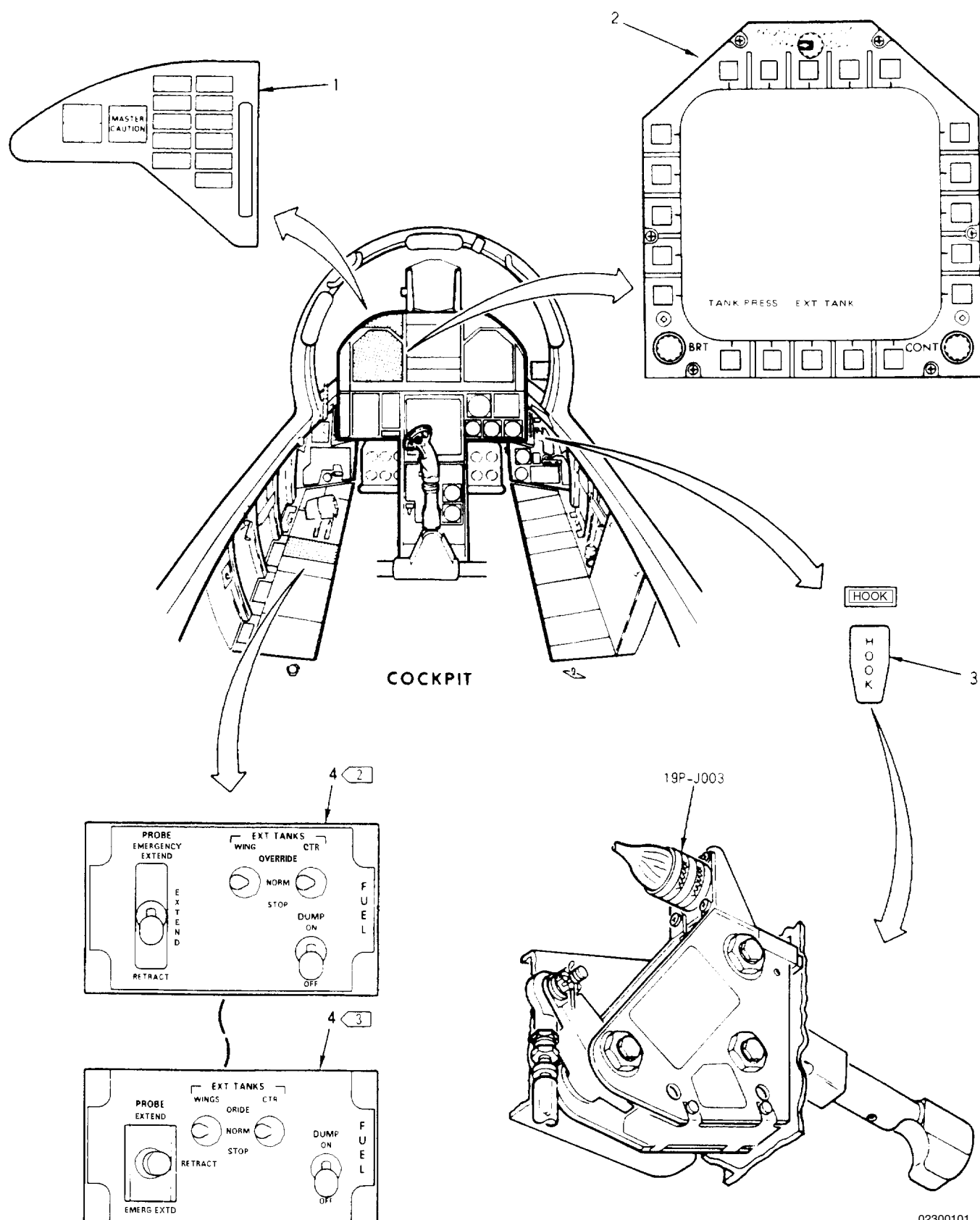
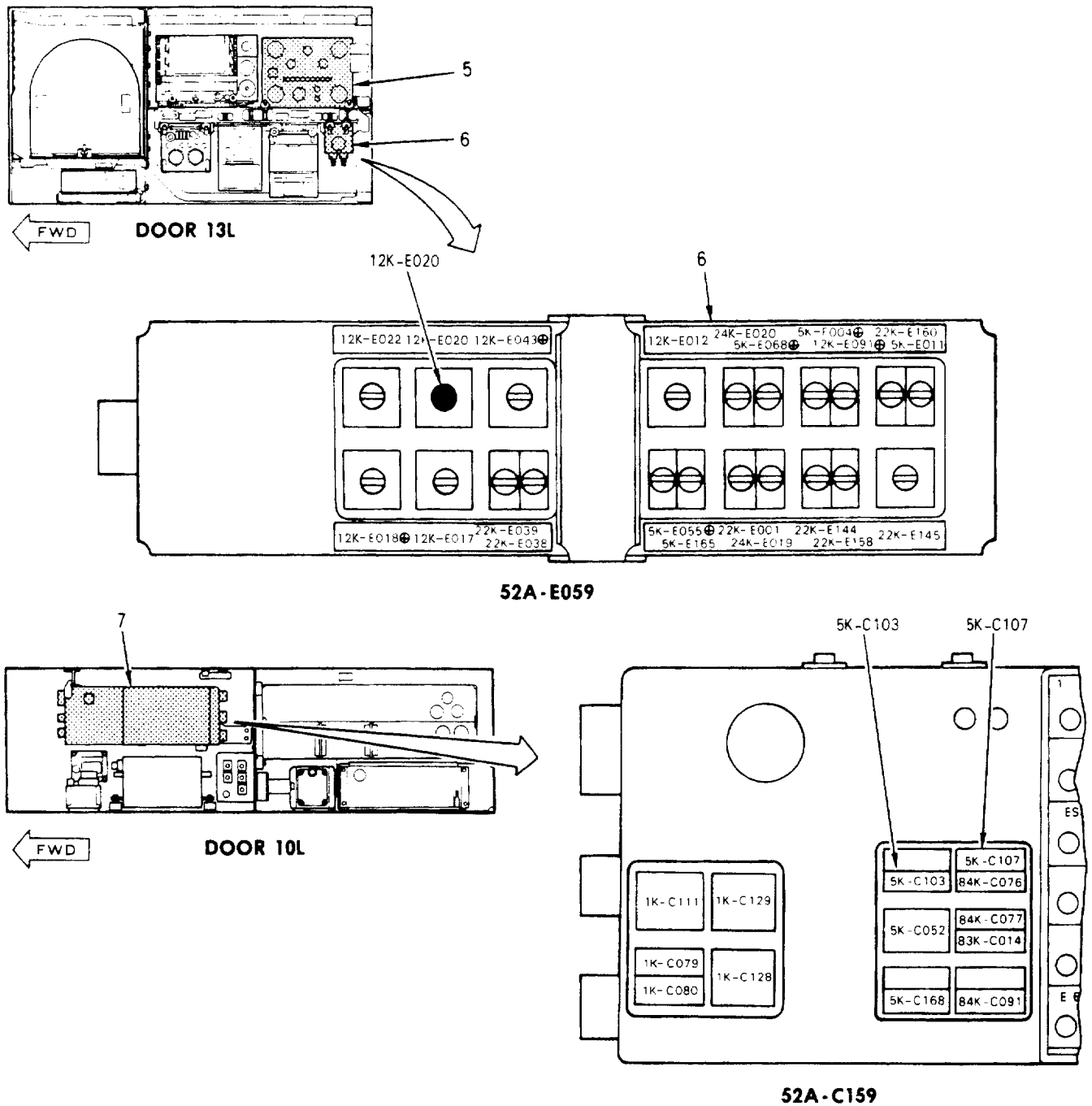


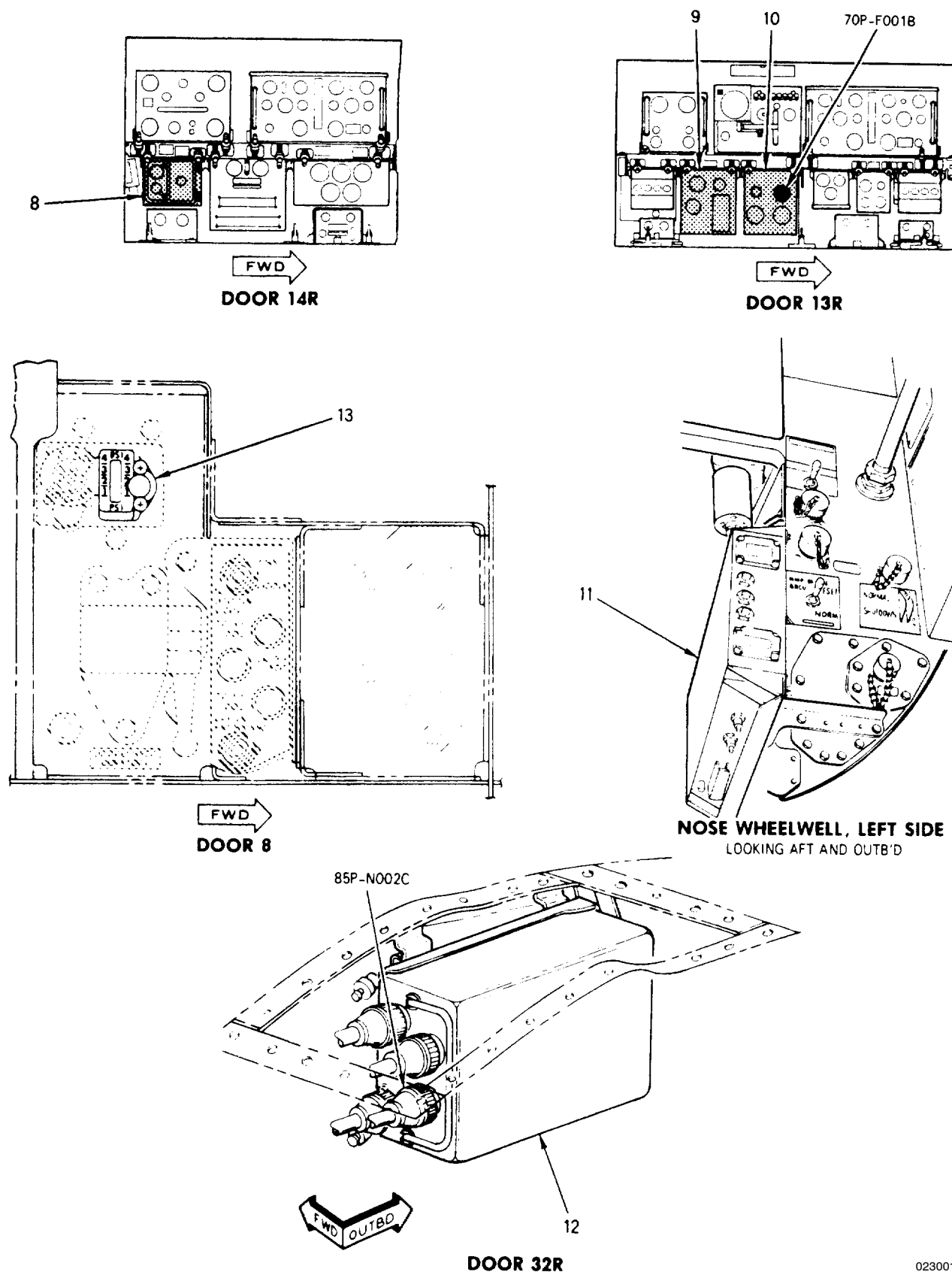
Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 1 of 18)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A6	5C8C101 5K-C103 5K-C107	FUEL TK PRESS 20K FT RELAY EXTERNAL TANK REFUEL CONTROL RELAY	L 28VDC

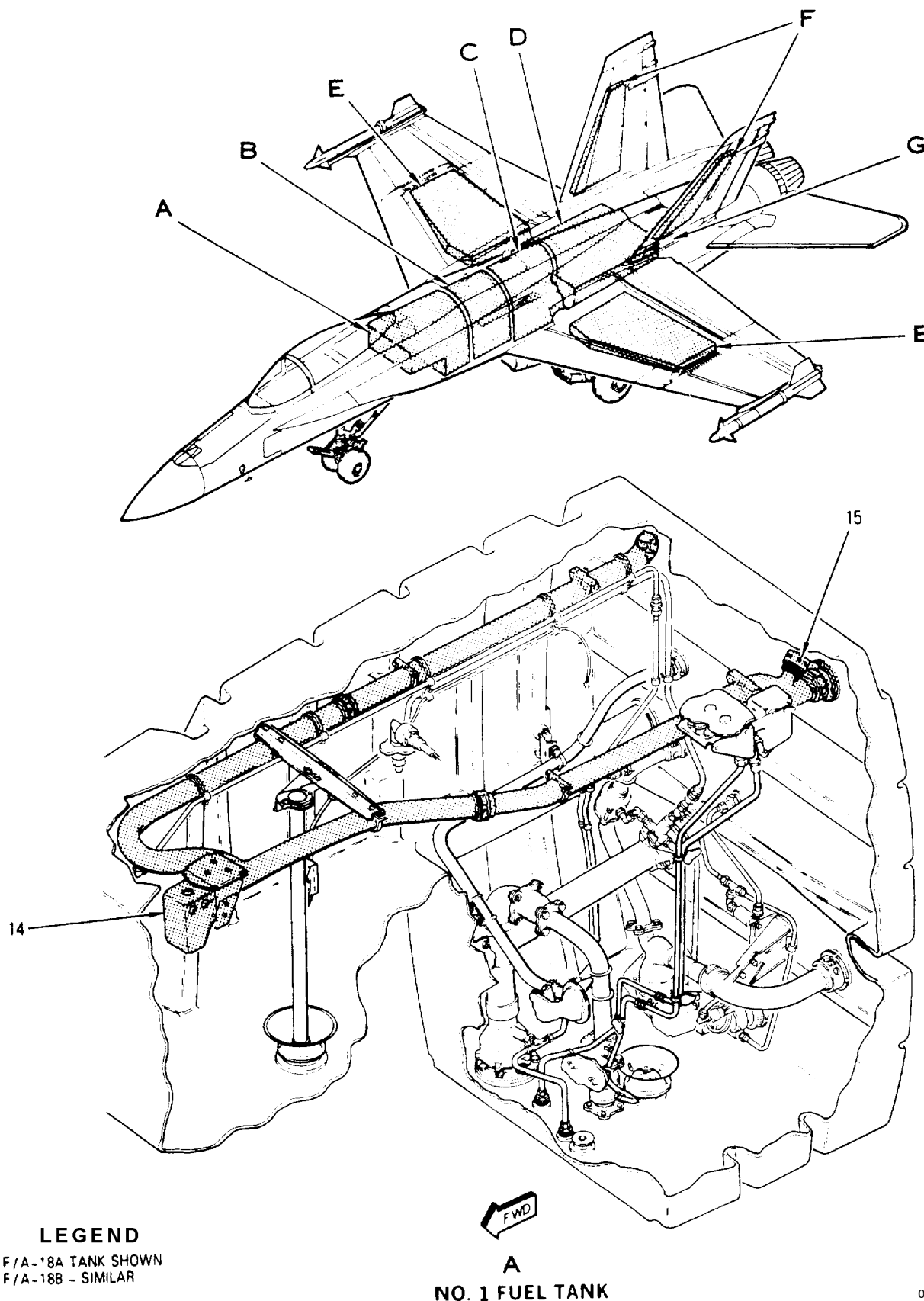
02300102

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 2)



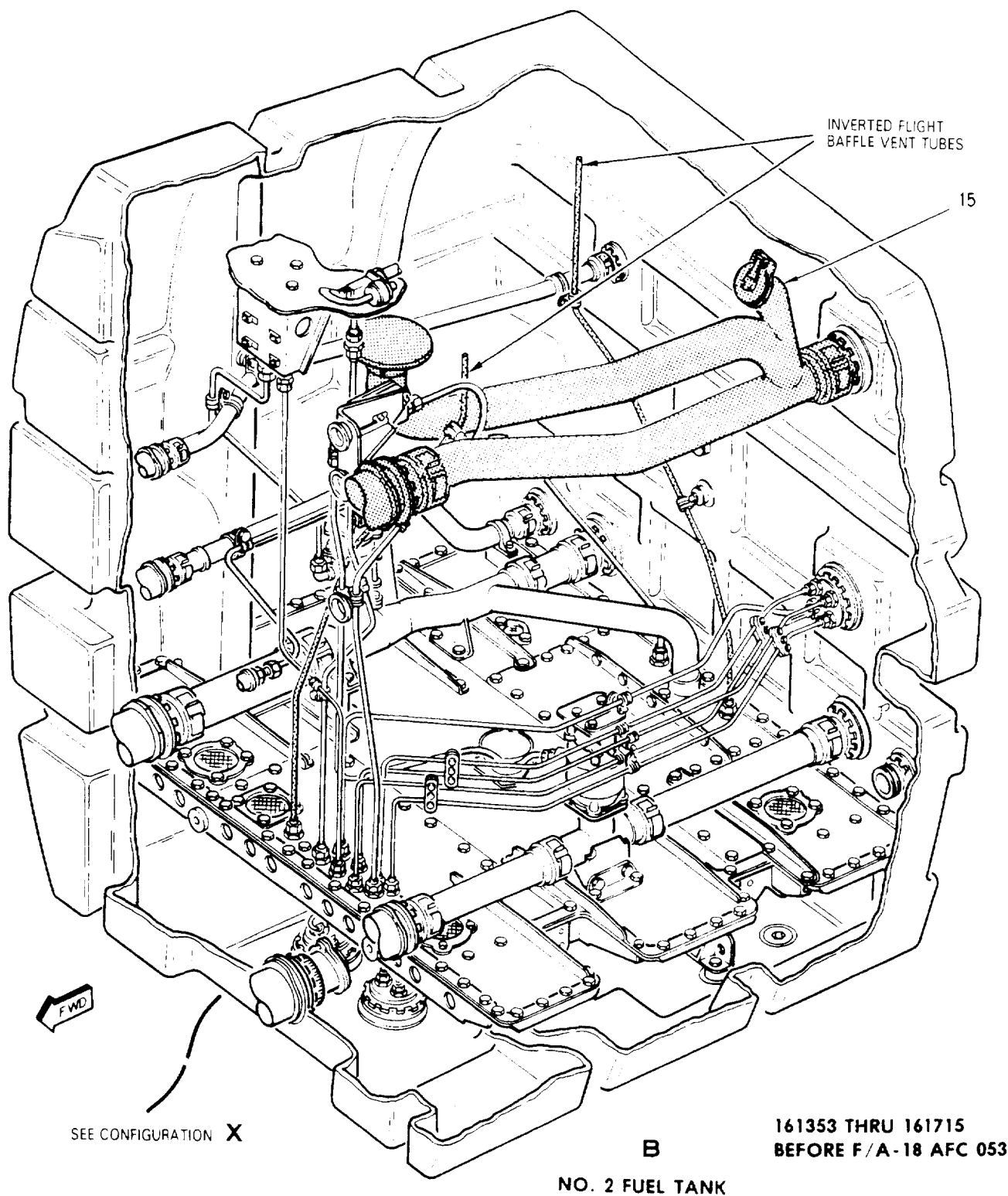
02300103

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 3)



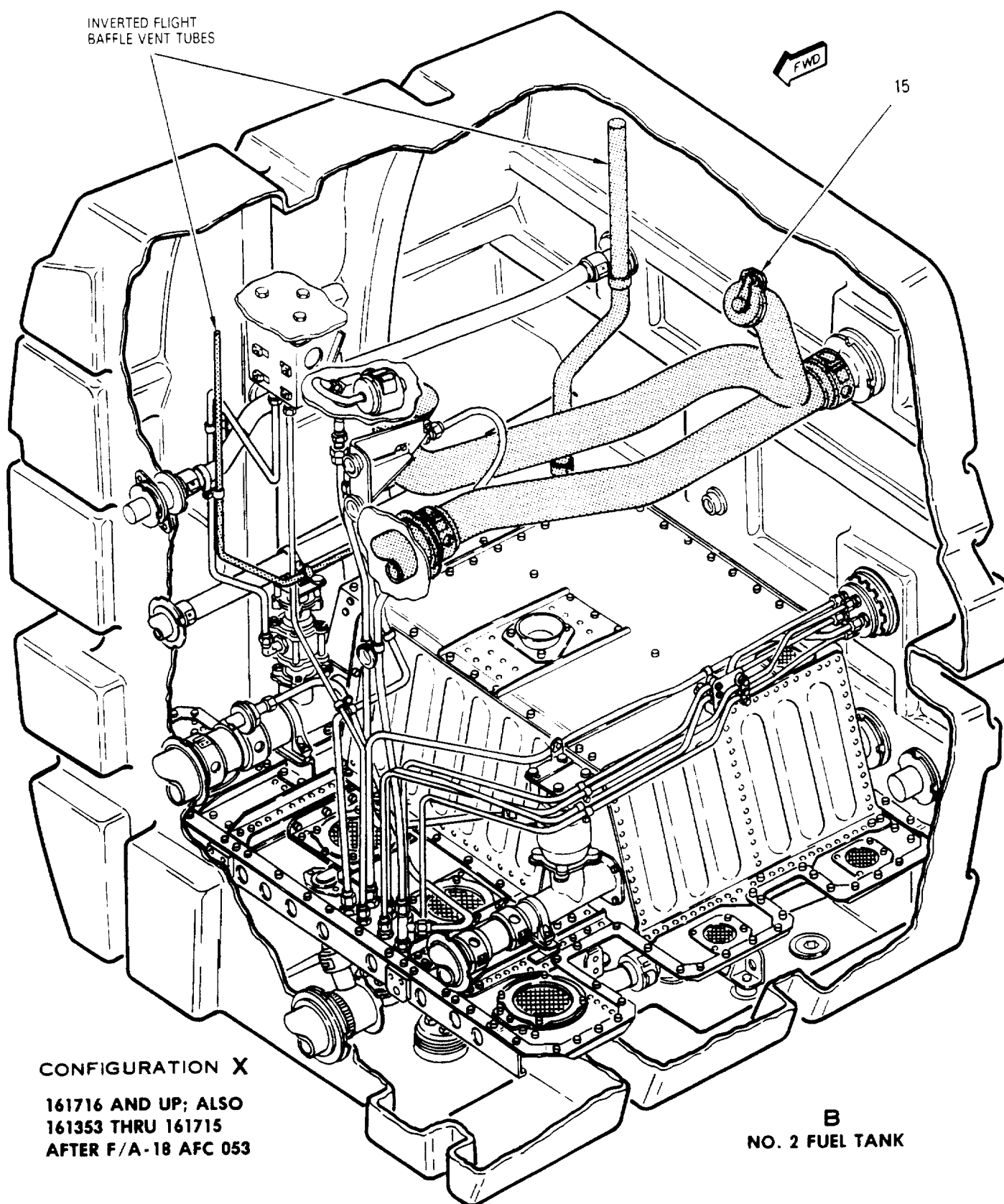
02300104

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 4)



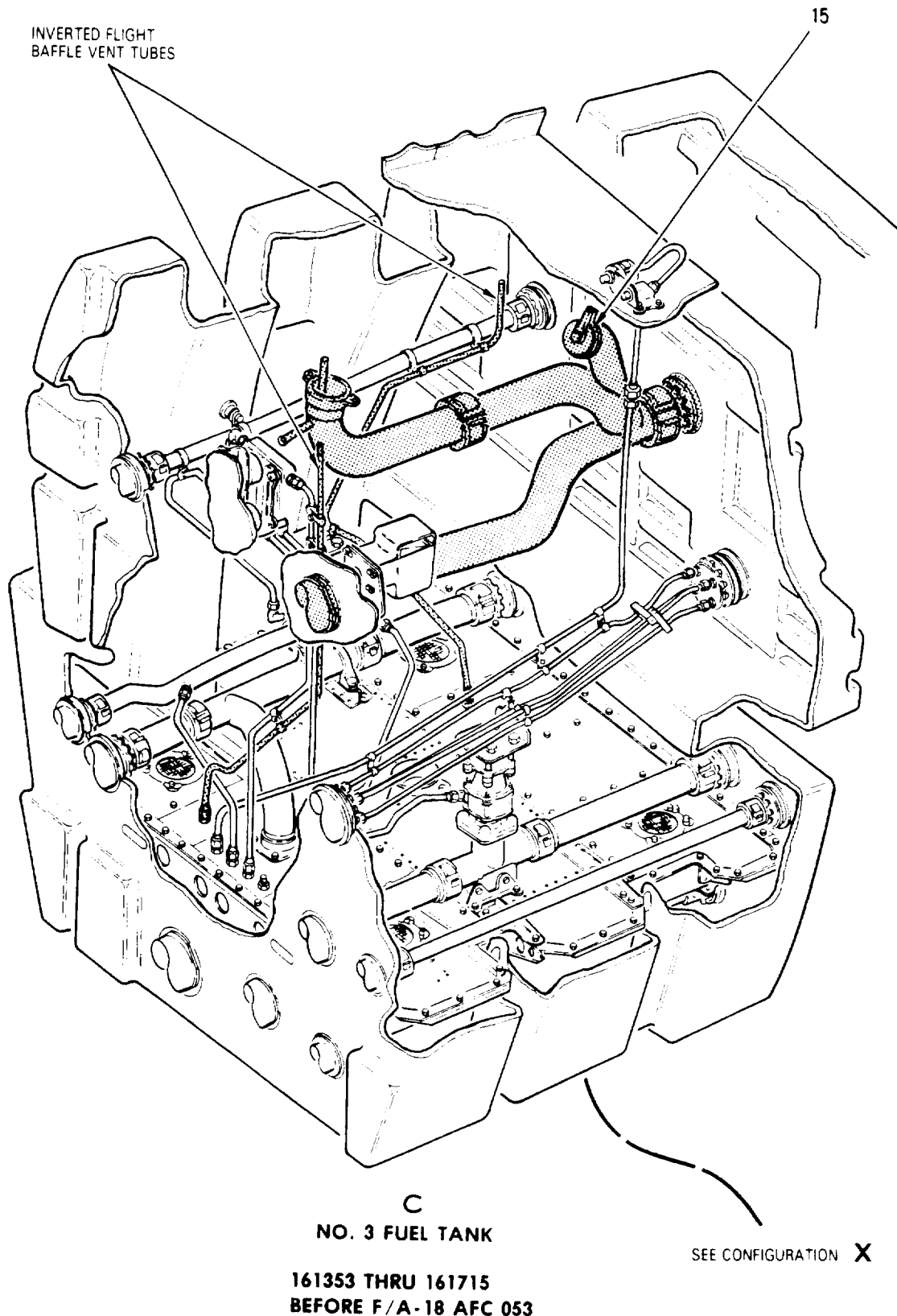
02300105

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 5)



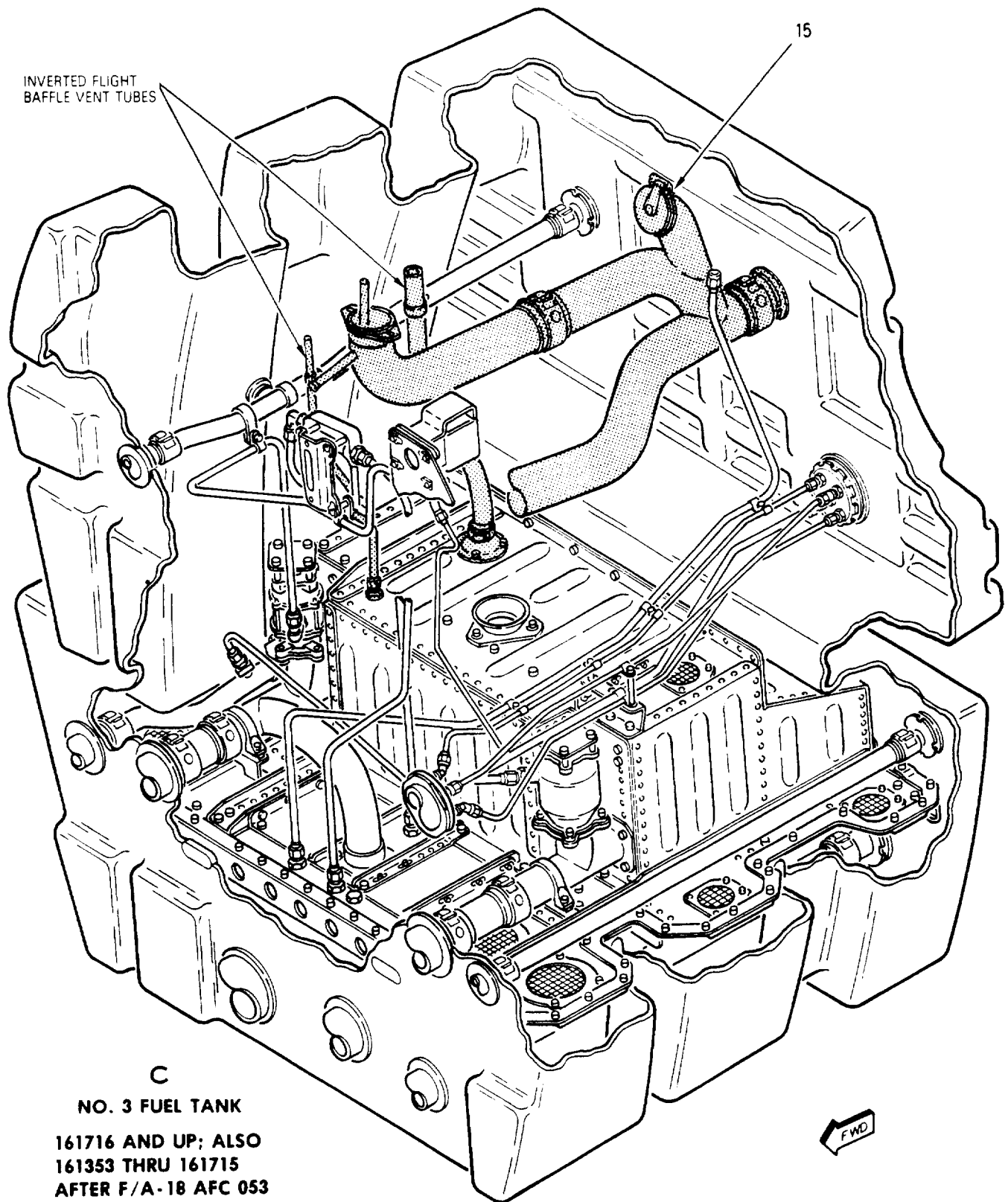
02300106

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 6)



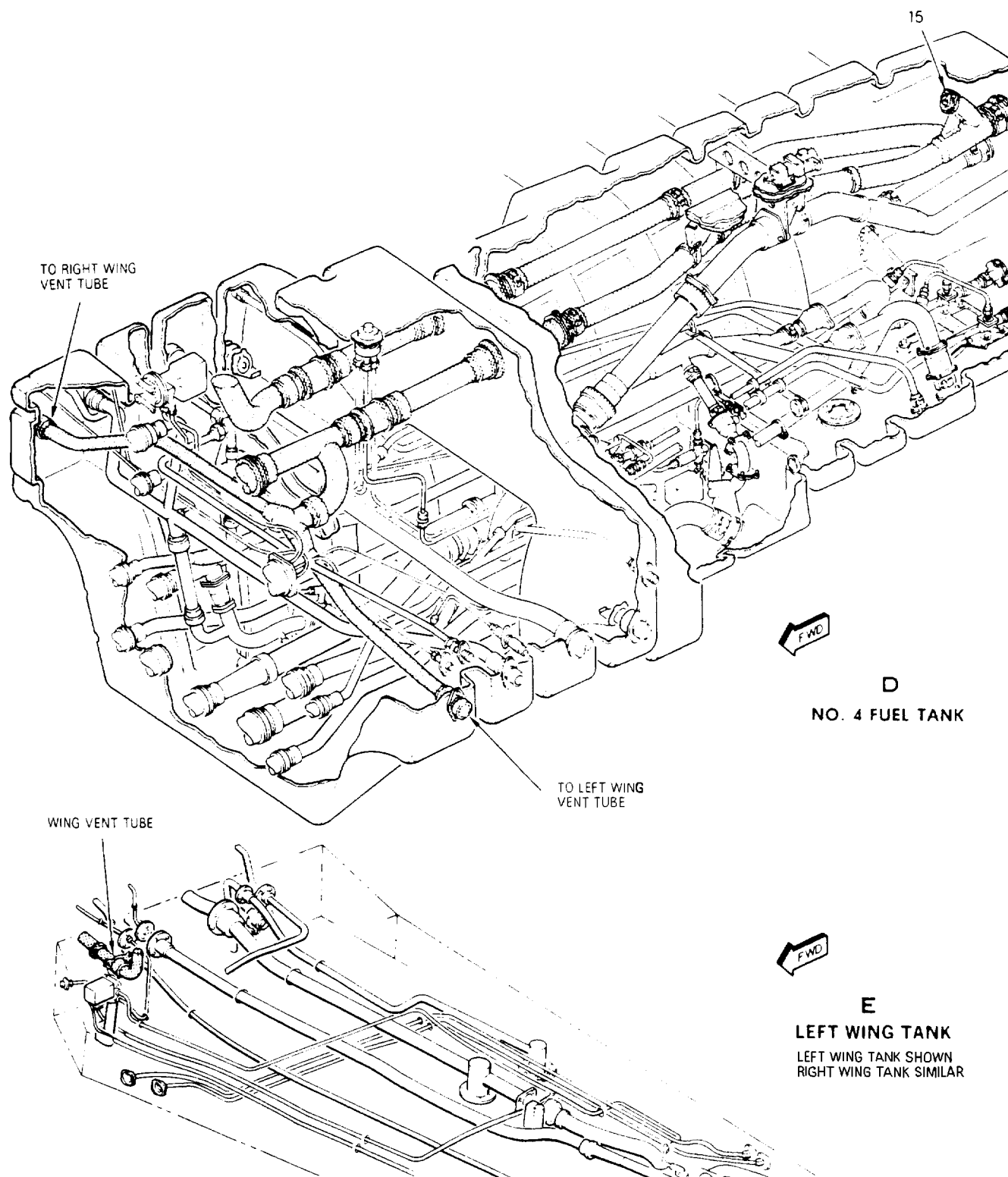
02300107

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 7)



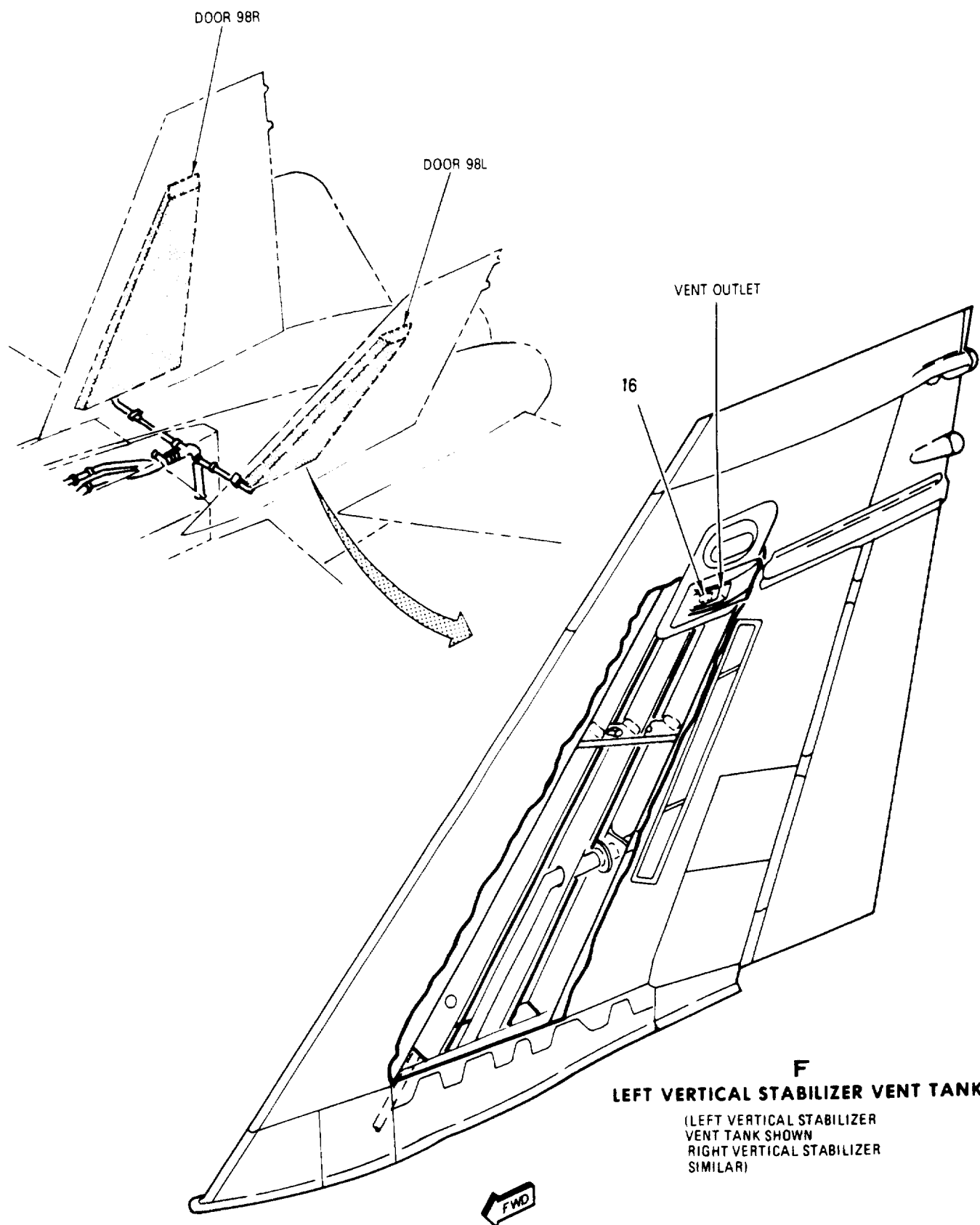
02300108

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 8)



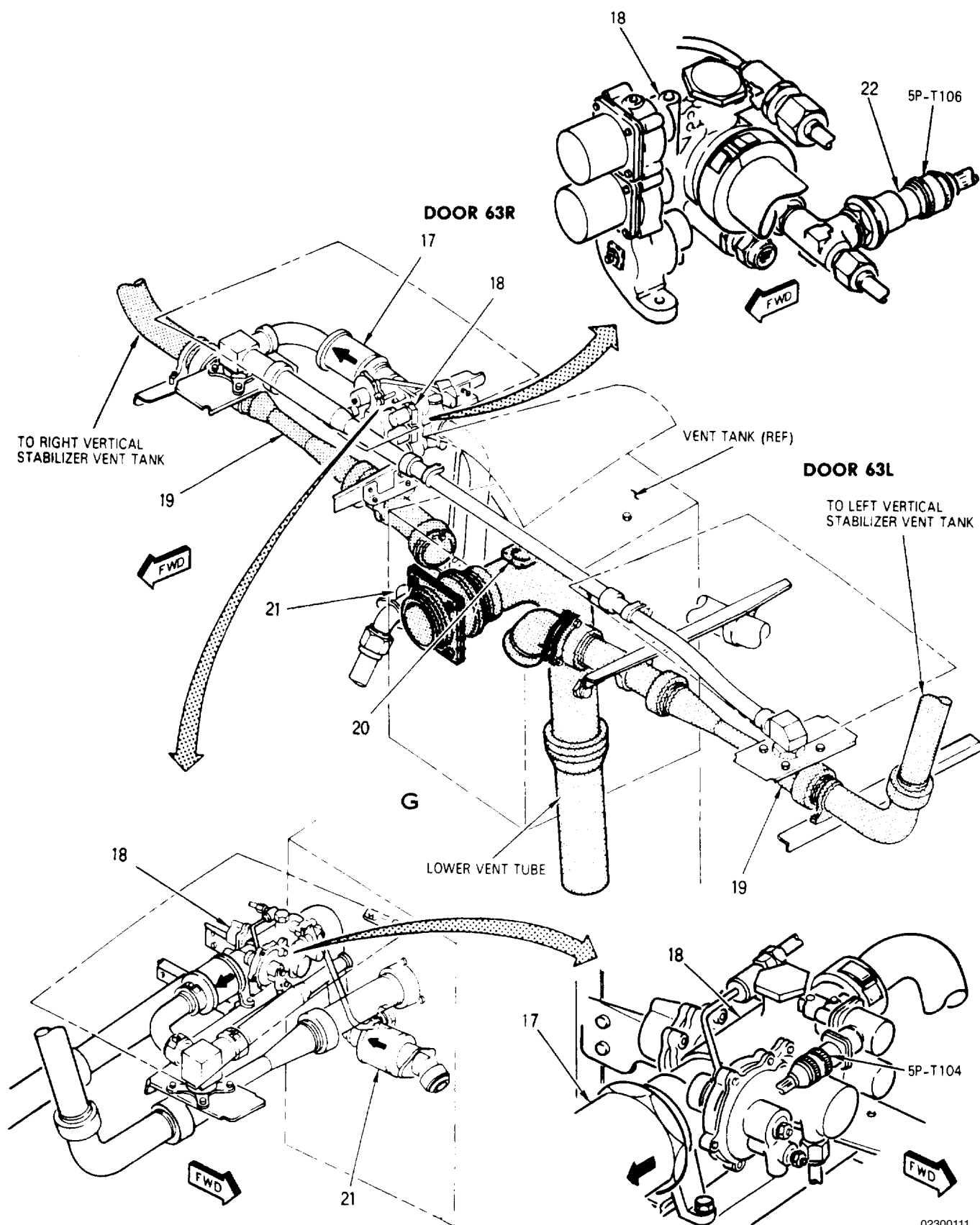
02300109

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 9)



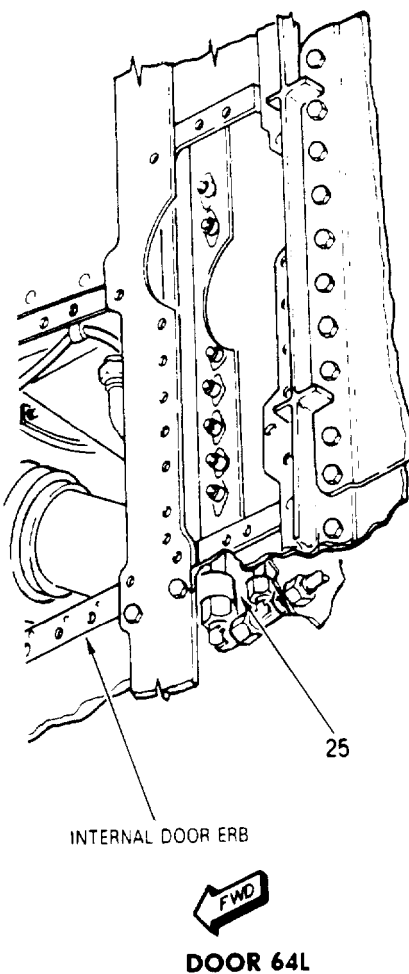
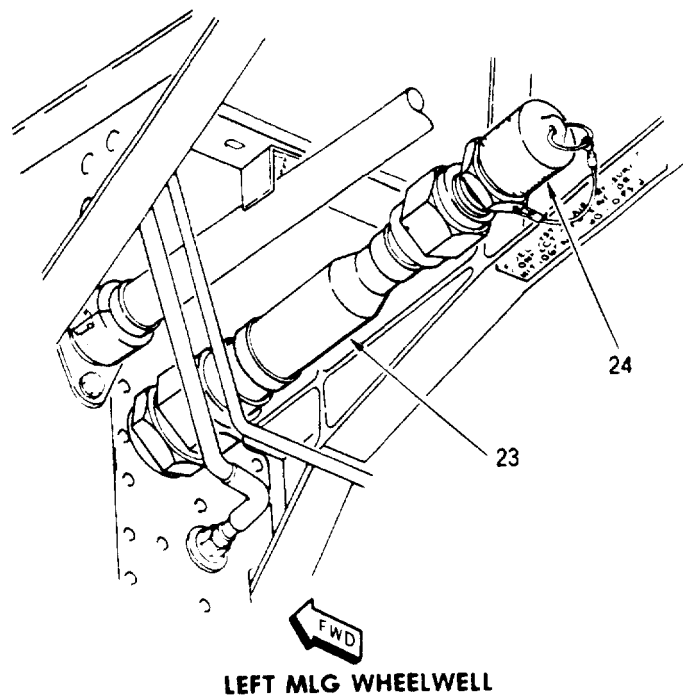
02300110

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 10)



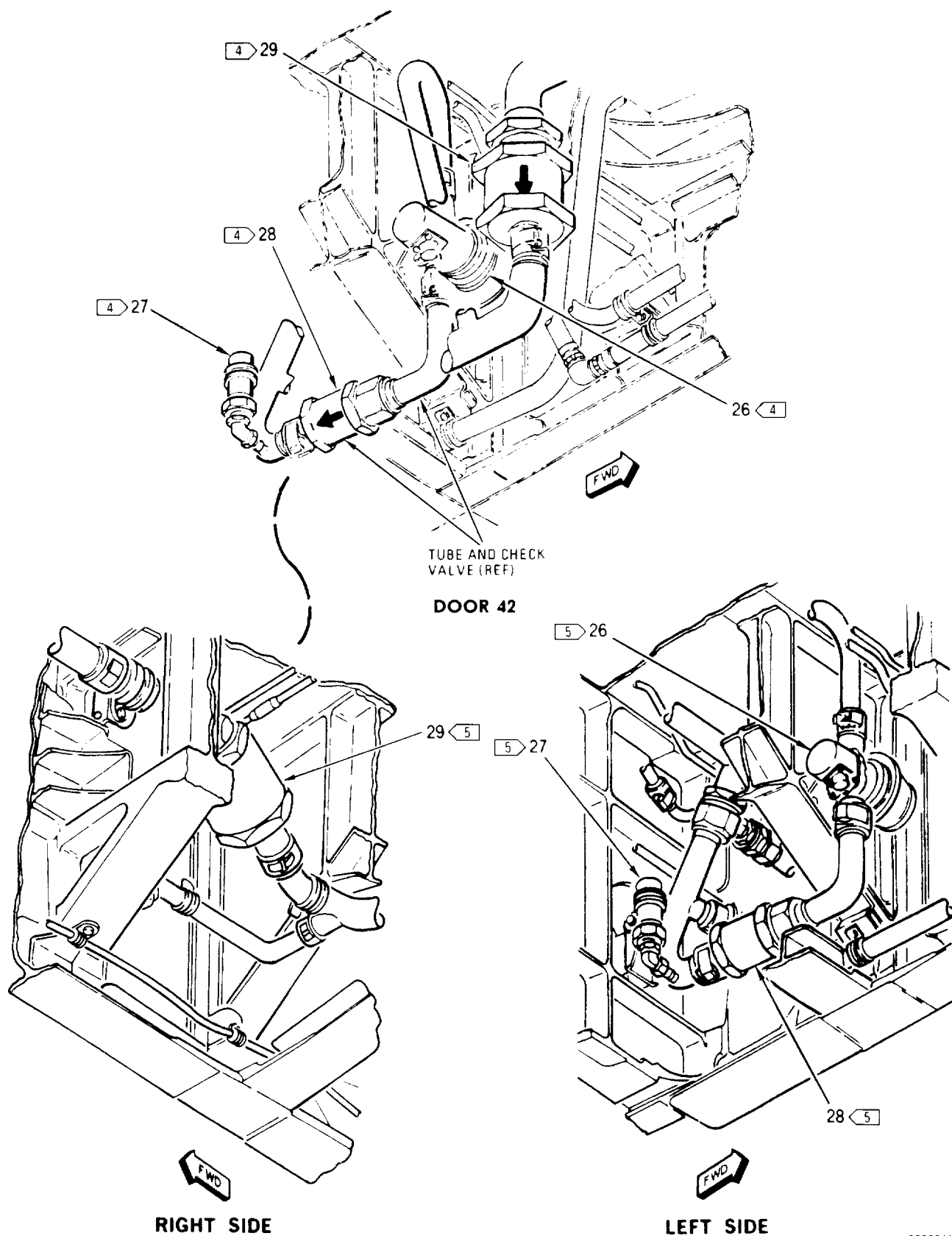
02300111

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 11)



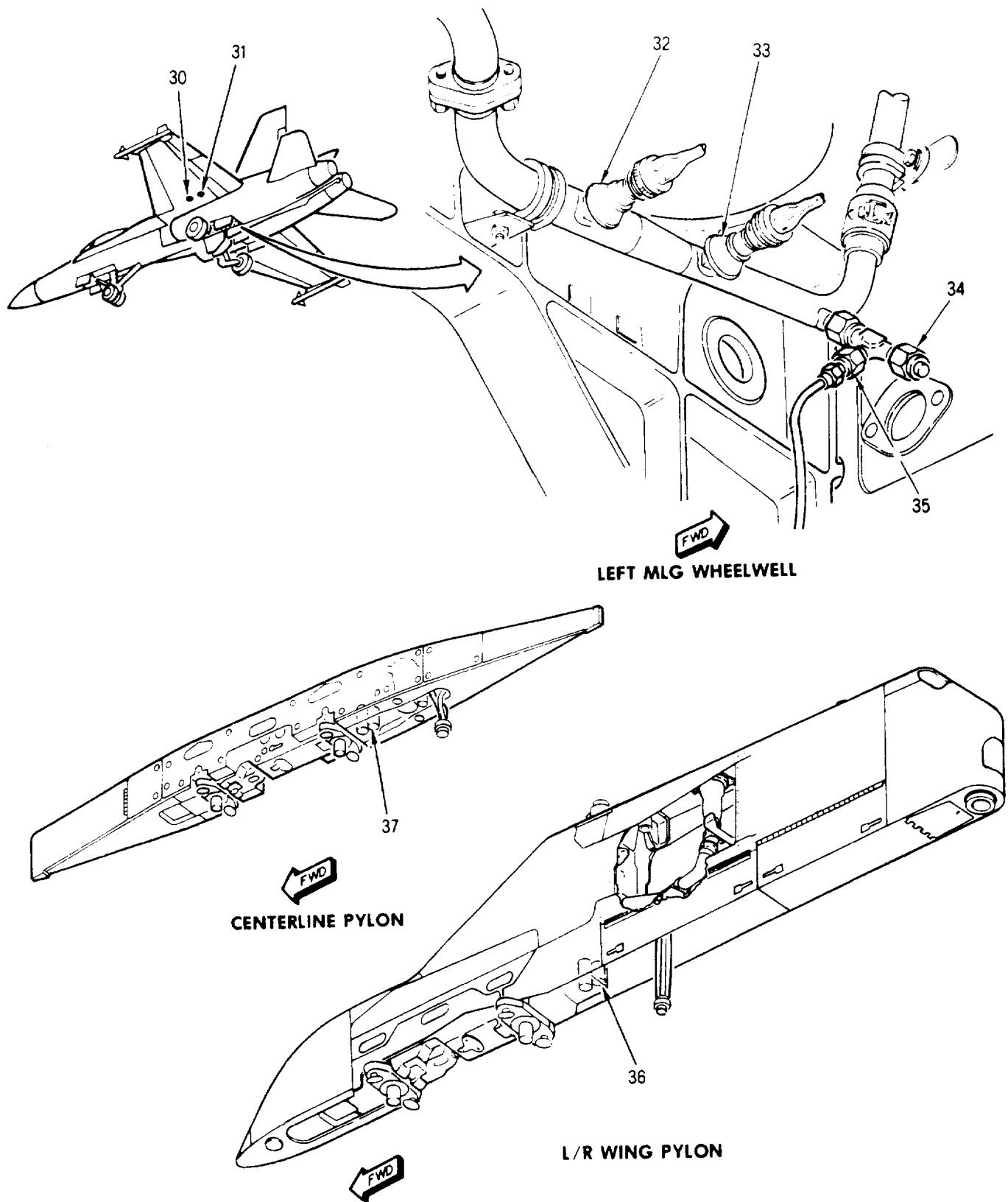
02300112

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 12)



02300113

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 13)



02300114

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 14)

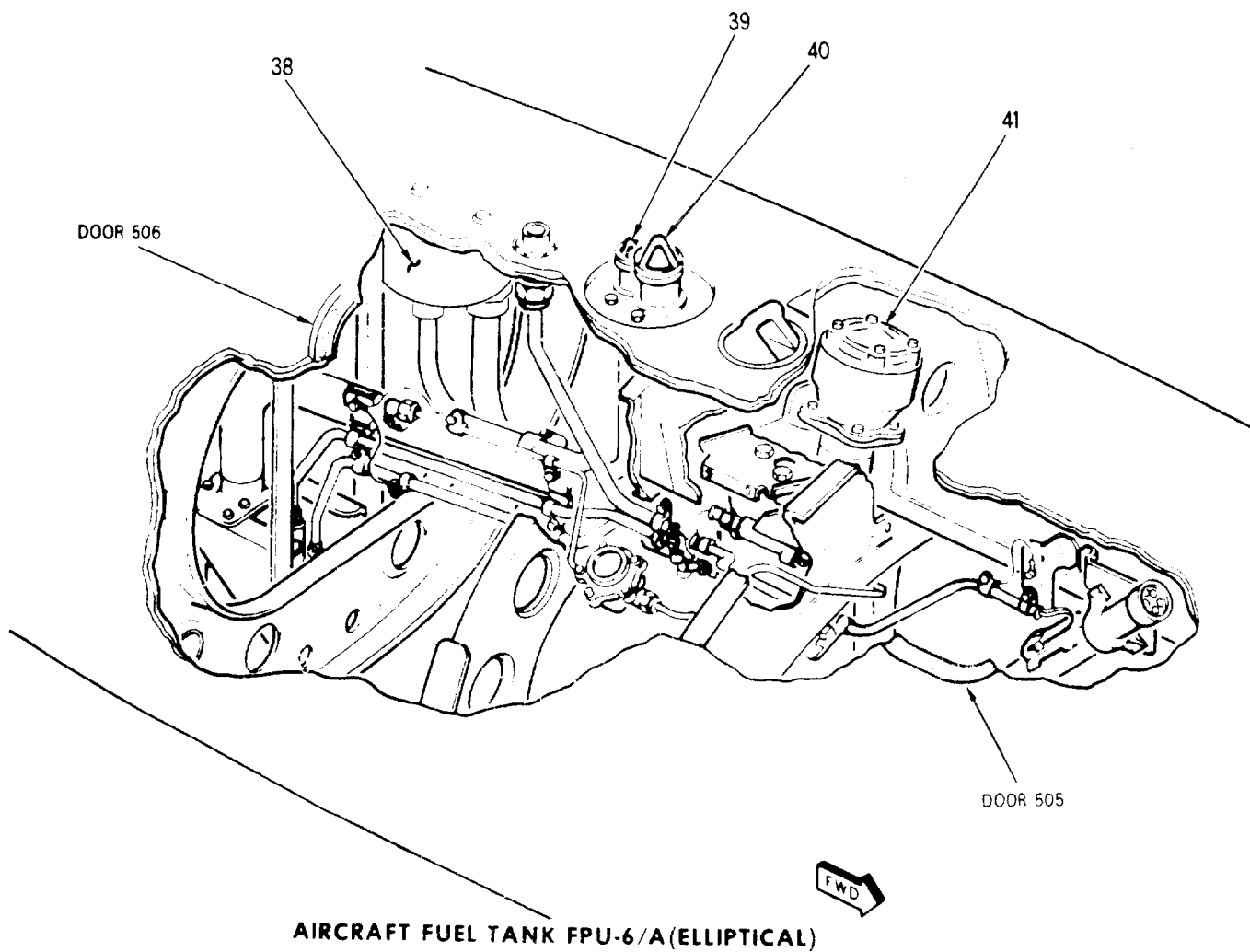
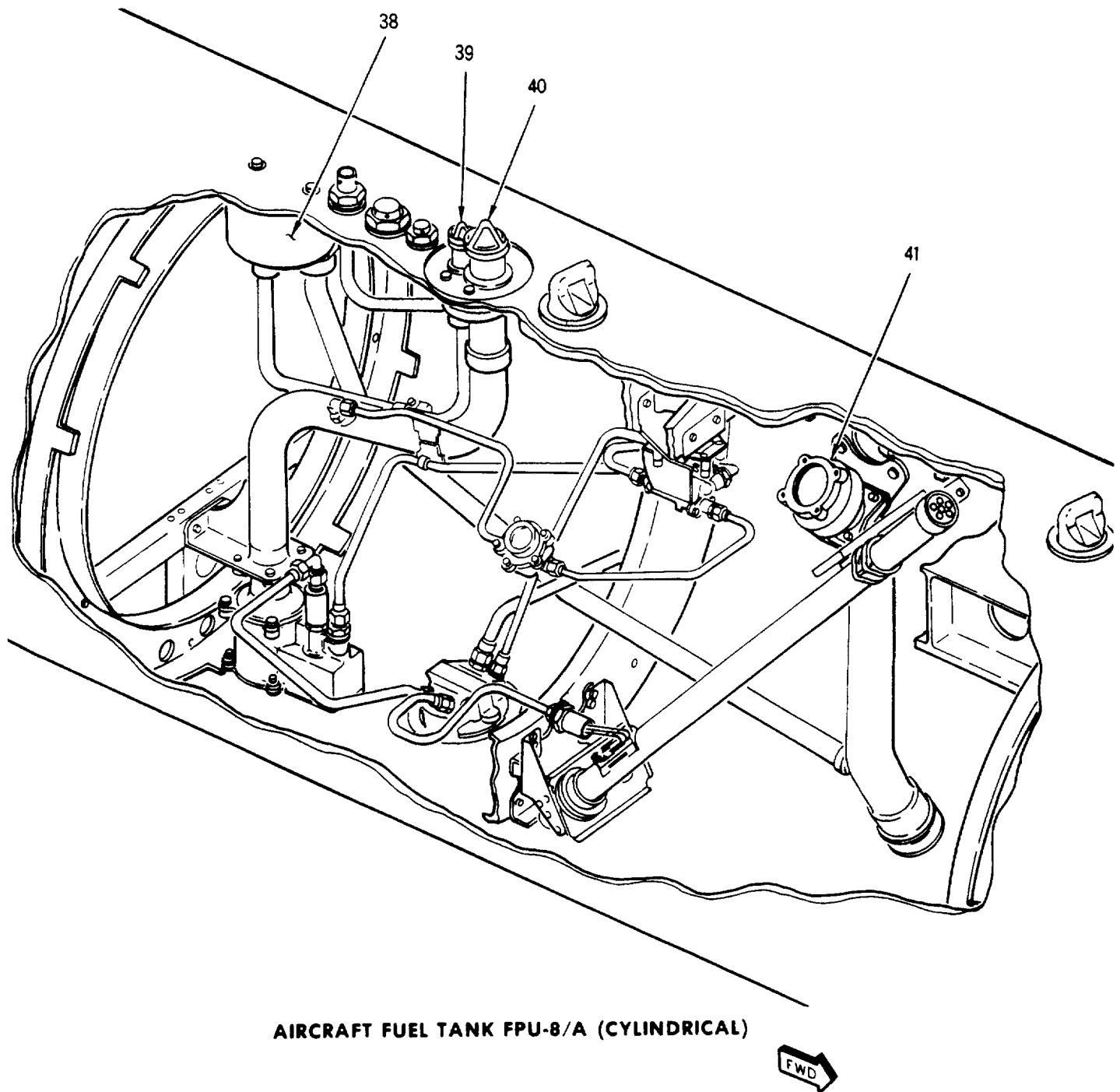


Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 15)



02300116

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 16)

Nomenclature	Index No.	Ref Des
AIR DATA COMPUTER	10	70A-F001
AIR PRESSURE SWITCH (2 PSI)	22	5S-T106
ARRESTING HOOK CONTROL HANDLE	3	19A-J003
BLEED AIR CHECK VALVE	29	5VAR620
BLEED AIR CHECK VALVE	21	5VAT507
CENTERLINE PYLON TO EXTERNAL TANK FUEL/AIR COUPLING VALVE	37	5VAZ629
CLIMB VENT CHECK VALVE	14	5VAP531
CONTROL-CONVERTER C-10382/A	9	82A-F001
DIGITAL DATA COMPUTER NO. 1	5	83A-E001
DIGITAL DISPLAY INDICATOR ID-2150/ASM-612	11	85A-G003
DIVE VENT CHECK VALVE	15	
TANK 1		5VAP530
TANK 2		5VAP593
TANK 3		5VAP582
TANK 4		5VAP555
EXTERNAL FUEL SYSTEM (5PSI) AIR PRESSURE SWITCH	33	5S-P151
EXTERNAL FUEL SYSTEM (34PSI) AIR PRESSURE SWITCH	32	5S-P152
EXTERNAL FUEL SYSTEM GROUND TEST CONNECTOR	34	
EXTERNAL FUEL SYSTEM PRESSURIZATION BLEED ORIFICE	35	5VAP654
EXTERNAL TANKS AIR PRESSURE CHECK VALVE	28	5VAR620
EXTERNAL TANKS AIR PRESSURE REGULATOR	26	5L-P102
EXTERNAL TANKS AIR PRESSURE TRANSDUCER	27	5MTR130
EXTERNAL TANK PRESSURE RELIEF VALVE	41	5VAY641
FUEL SYSTEM CONTROL PANEL	4	5A-H027
EXT TANKS - WING SWITCH		5S-H017
EXT TANKS - CTR SWITCH		5S-H018
PROBE CONTROL SWITCH		5S-H005
FUEL VENT LINE FLAME ARRESTOR	16	
LEFT		5MPS504
RIGHT		5MPT505
GROUND AIR PRESSURIZATION CONNECTOR	24	

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 17)

Nomenclature	Index No.	Ref Des
GROUND AIR PRESSURIZATION FILTER	23	5FAP638
INTERNAL AIR PRESSURIZATION CHECK VALVE	17	5VAT513
INTERNAL FUEL TANKS AIR PRESSURE REGULATOR	18	5L-T104
LEFT DIGITAL DISPLAY INDICATOR IP-1317()	2	80A-H001
LH ADVISORY AND THREAT WARNING INDICATOR PANEL	1	52A-H073
NO. 3 RELAY PANEL ASSEMBLY	6	52A-E059
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	7	52A-C159
PRESSURIZATION AND VENT VALVE	38	5VAY630
PRESSURIZATION SYSTEM AIR PUMP LEFT RIGHT	19	5BAS512 5BAT511
PYLON AIR PROBE	39	5VAY642
PYLON FUEL PROBE	40	5VAY637
SIGNAL DATA CONVERTER CV-3493/ASM-612	12	85A-N002
SIGNAL DATA RECORDER RO-508/ASM-612	8	85A-F001
TANK PRESSURE/FUEL FLOW INDICATOR	13	5DSD625
VENT SYSTEM SIPHON BREAKER	20	5VAS545
VENT TANK PRESSURE TRANSDUCER	25	5MTT129
WING PYLON TO EXTERNAL TANK FUEL AIR COUPLING VALVE	36	
WING AIR COUPLING VALVE LEFT RIGHT	31	5VAU577 5VAV578
WING FUEL COUPLING VALVE LEFT RIGHT	30	5VAU575 5VAV576
LEGEND 1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18()-WDM-000. 2 161353 THRU 161528 BEFORE F/A-18 AFC 41. 3 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 41. 4 161353 THRU 161761. 5 161924 AND UP.		

Figure 1. Fuel Pressurization and Vent System Component Locator (Sheet 18)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TEST

FUEL QUANTITY GAGING AND LOW LEVEL WARNING SYSTEM

Reference Material

Line Maintenance Procedures A1-F18AC-LMM-000
 Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Fuel Quantity Gaging and Low Level Warning System Test, Table 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Dec 86	—
F/A-18 AFC 48	—	Alternating Current Bus Isolation (ECP MDA- F/A-18-000121)	1 Dec 86	—

Table 1. Fuel Quantity Gaging and Low Level Warning System Test

Procedure	Normal Indication	Remedy for Abnormal Indication
<p align="center">System Required Components</p> <p align="center">All system components installed.</p> <p align="center">Related Systems Required</p> <p align="center">Electrical System</p> <p align="center">Multipurpose Display Group</p> <p align="center">Support Equipment Required</p> <p align="center">None</p> <p align="center">Materials Required</p> <p align="center">None</p> <p align="center">NOTE</p> <p align="center">Component locations are shown in WP024 01 and WP024 02. Fuel Quantity Gaging System Schematic (A1-F18AC-460-500, WP012 00) and Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 00) may be used while doing this test.</p>		
<p>1. PREPARATION.</p> <p>a. Tanks 2 and 3 must have a minimum of 1000 lb of fuel in each tank. Refuel if required (A1-F18AC-PCM-000).</p> <p>b. Observe red OFF and yellow ID flags on FUEL QTY indicator.</p>	<p>1. Red flag shows OFF.</p> <p>2. Yellow flag shows ID.</p>	<p>1. Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00).</p> <p>2. Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00).</p>

Table 1. Fuel Quantity Gaging and Low Level Warning System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
c. Hook up cockpit headset (A1-F18AC-LMM-000). d. Apply external electrical power (A1-F18AC-LMM-000).		
<p style="text-align: center;">NOTE</p> <p>With Digital Data Computer No. 1/No. 2 Software Program CONFIG/INDENT Number 85A AND UP (A1-F18AC-SCM-000), the number of CAUTIONS on the Digital Display Indicator IP-1317() has been limited to 21. When this procedure requires the presence of a CAUTION or requires that the CAUTION does not exist and 21 CAUTIONS are already displayed, hydraulic power must be applied (A1-F18AC-LMM-000) to provide space for the required CAUTION indication.</p>		
e. Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).	FUEL LO not displayed on cockpit Digital Display Indicator IP-1317() or caution light indicator panel.	Do table 2, WP026 00.
f. Observe red OFF and yellow ID flags on FUEL QTY indicator.	1. OFF flag black. 2. ID flag black.	1. Do table 1, WP025 00. 2. Do table 2, WP025 00.
g. Record LEFT, RIGHT, TOTAL LBS, and INTR amounts on FUEL QTY indicator. On F/A-18B, record TOTAL LBS and INTERNAL LBS counter amounts on repeater indicator.	Left counter shows 0 to 2840 lb. Right counter shows 0 to 3620 lb. INTR needle shows 0 to 10,810 lb. TOTAL LBS counter shows to 10,810 lb. (external tanks not installed).	Do table 1, WP027 00.
2. BIT TEST. (QA)		
a. Do substeps below:		
(1) On FUEL QTY indicator, turn BINGO set selector 7000 LB.		

Table 1. Fuel Quantity Gaging and Low Level Warning System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
(2) Set and hold FUEL QTY selector knob to BIT and observe counters and needle.	<p>1. Counters and needle do not hang up. Left counter moves to 550 to 650 lb. Right counter moves to 550 to 650 lb. TOTAL LBS counter moves to 5800 to 6200 lb. INTR needle moves to 5800 to 6200 lb. ID flag on FUEL QTY indicator shows black after counters and needle stop moving.</p> <p>2. FUEL LO displayed on caution light indicator panel. On 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53, FUEL LO displayed 10 seconds after BIT was started.</p>	<p>1. Do table 2, WP027 00.</p> <p>2. If FUEL LO only displayed on Left Digital Display Indicator IP-1317(), do table 1, WP026 00. On 161353 THRU 161761, BEFORE F/A-18AFC 53 if FUEL LO is not displayed on both the caution light indicator panel and Left Digital Display Indicator IP-1317(), do table 3, WP026 00. On 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53, do table 1, WP026 02. On 162394 AND UP, do table 2, WP026 02.</p>

NOTE

If any display listed below does not appear on Left Digital Display Indicator IP-1317(), the FUEL ADV will be displayed. FUEL ADV will display until malfunction is corrected.

	<p>3. Left Digital Display Indicator IP-1317() displays as listed below:</p> <p>a. FUEL LO</p> <p>b. BINGO</p> <p>c. On 161520 AND UP, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39 AND 53; CG</p> <p>4. Fuel low and bingo voice alert heard in headset.</p> <p>5. MASTER CAUTION light/switch on left advisory and threat warning indicator panel comes on.</p>	<p>If FUEL LO not displayed, do table 2, WP026 00. If BINGO not displayed, 161353 THRU 161761 BEFORE F/A-18 AFC 53, do table 4, WP025 00. If BINGO not displayed, 161924 AND UP, ALSO 161353 THRU 161671 AFTER F/A-18 AFC 53, do table 5, WP025 00. If CG not displayed, do table 2, WP035 00.</p> <p>Do table 4, WP026 00.</p> <p>Refer to A1-F18AC-440-200, WP006 00.</p>
--	---	---

Table 1. Fuel Quantity Gaging and Low Level Warning System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
b. Release FUEL QTY selector knob.	<p>6. On F/A-18, repeater indicator shows TOTAL LBS 5800 to 6200 lb and INTERNAL LBS 5800 to 6200 lb.</p> <p>1. Selector knob returns to FEED. LEFT, RIGHT, and TOTAL LBS counters return without stopping or jerking to amounts recorded in step 1.g. ID flag remains black.</p> <p>2. On F/A-18 repeater indicator, TOTAL LBS and INTERNAL LBS counters return without stopping or jerking to amounts recorded in step 1.g.</p> <p>3. After approximately 60 seconds, FUEL LO not displayed.</p> <p>4. BINGO not displayed on Left Digital Display Indicator IP-1317().</p>	<p>Do table 3, WP025 00.</p> <p>1. Replace FUEL QTY indicator (A1-F18AC-460-300, WP016 00).</p> <p>2. Replace fuel quantity repeater indicator (A1-F18AC-460-300, WP161 00).</p> <p>On 161353 THRU 161987 BEFORE F/A-18 AFC 48 isolate between 5K-C147 fuel low level time delay relay and no. 7 circuit/relay panel assembly wiring (A1-F18AC-420-300, WP027 00). On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, isolate between 5K-C147 fuel low level time delay relay and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00).</p> <p>Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00).</p>
<p style="text-align: center;">NOTE</p> <p>If PROBE control switch on FUEL system control panel is set to EXTEND when BIT is initiated, CG caution will remain on after BIT is complete.</p>		
c. Turn BINGO set selector to 0.	<p>5. On 161520 AND UP, ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39 AND 53; CG not displayed on Left Digital Display Indicator IP-1317().</p>	<p>If PROBE control switch set to EXTEND, reset PROBE control switch to RETRACT and do BIT test again. If PROBE control switch set to RETRACT, do table 1, WP035 01.</p>

Table 1. Fuel Quantity Gaging and Low Level Warning System Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
NOTE FUEL LO light on caution light indicator panel and MASTER CAUTION light will come on when fuel in tanks 2 or 3 is below 700 to 900 lbs.		
d. Monitor caution light indicator panel and defuel aircraft (A1-F18AC-PCM-000) until tanks 2 and 3 have approximately 500 lbs each.	FUEL LO light on caution light indicator panel comes on when tanks 2 and 3 fuel amounts are less than 700 to 900 lb.	Do table 1, WP026 01.
e. Disconnect cockpit headset (A1-F18AC-LMM-000).		
f. Remove external electrical power (A1-F18AC-LMM-000).		

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
FUEL QUANTITY GAGING SYSTEM

Reference Material

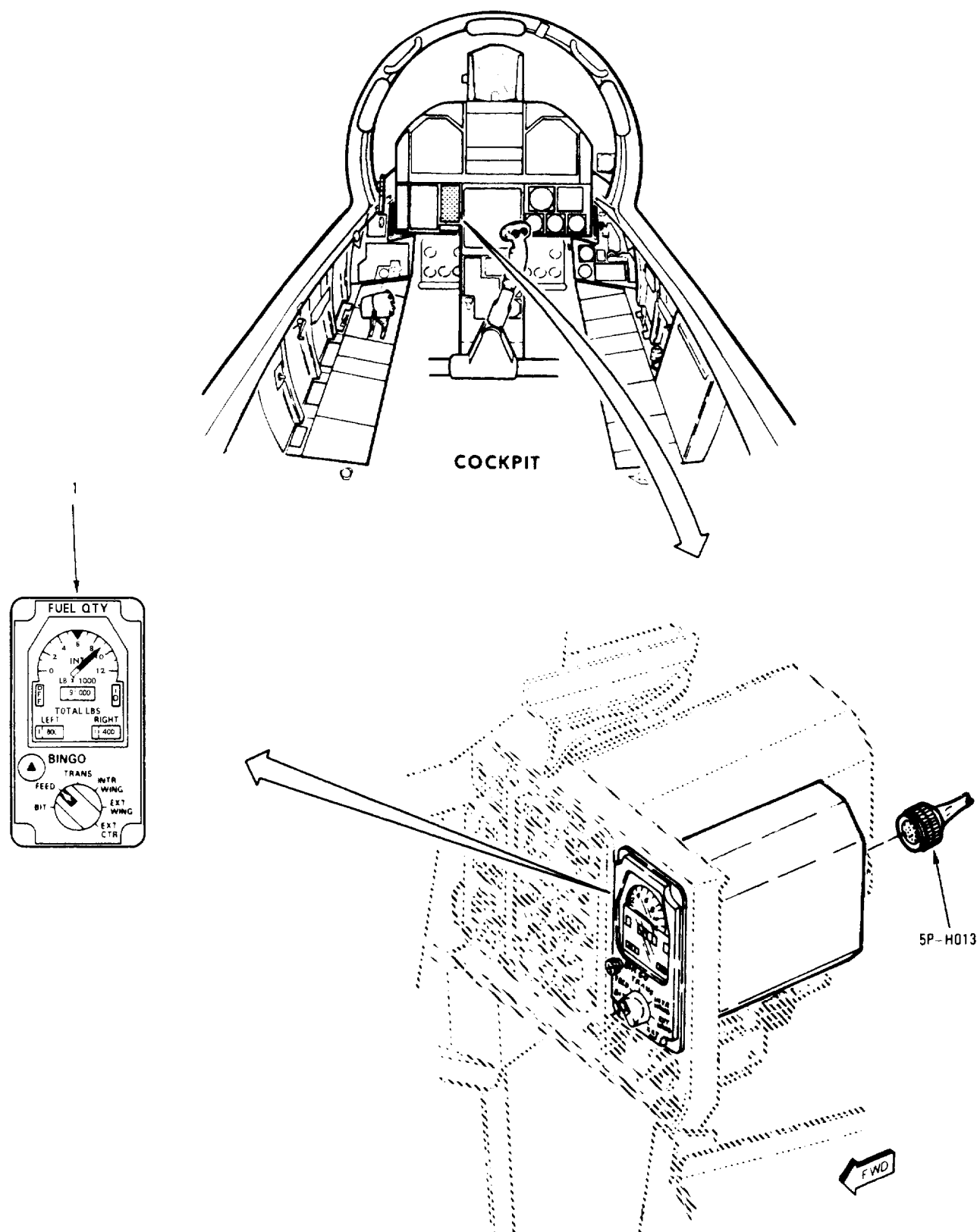
None

Alphabetical Index

Subject	Page No.
Fuel Quantity Gaging System Component Locator, Figure 1	2

Record of Applicable Technical Directives

None



24010101

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 1 of 9)

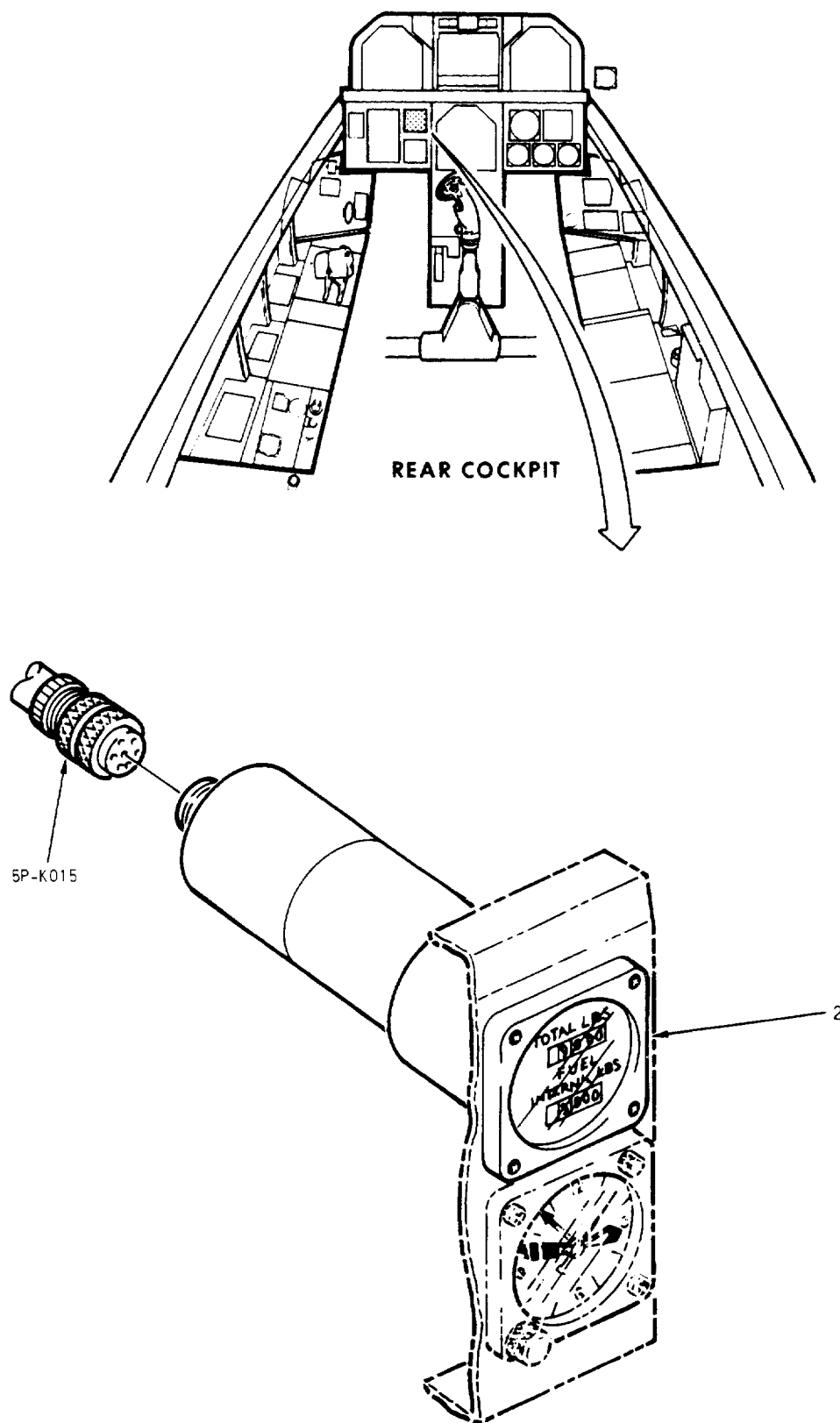
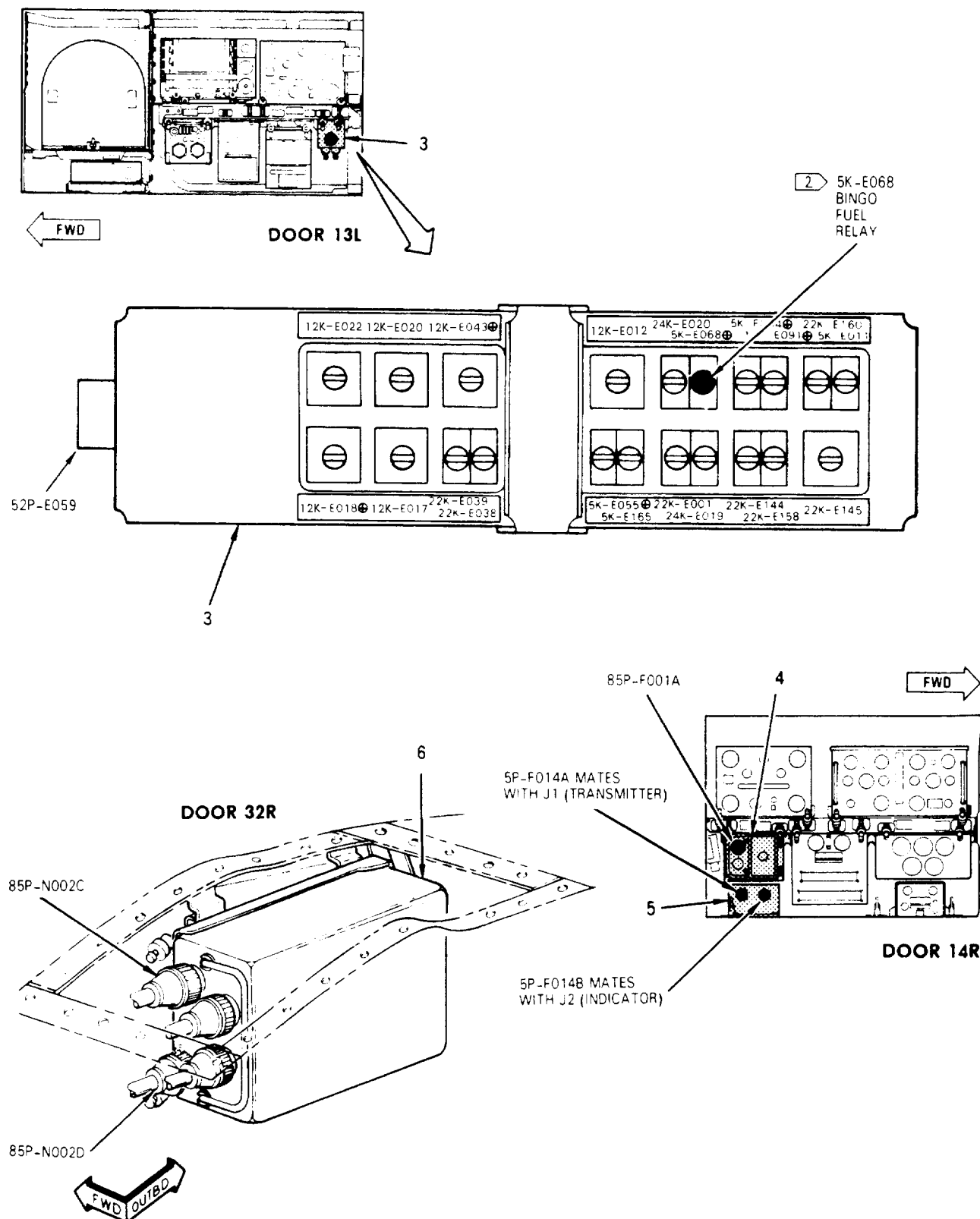
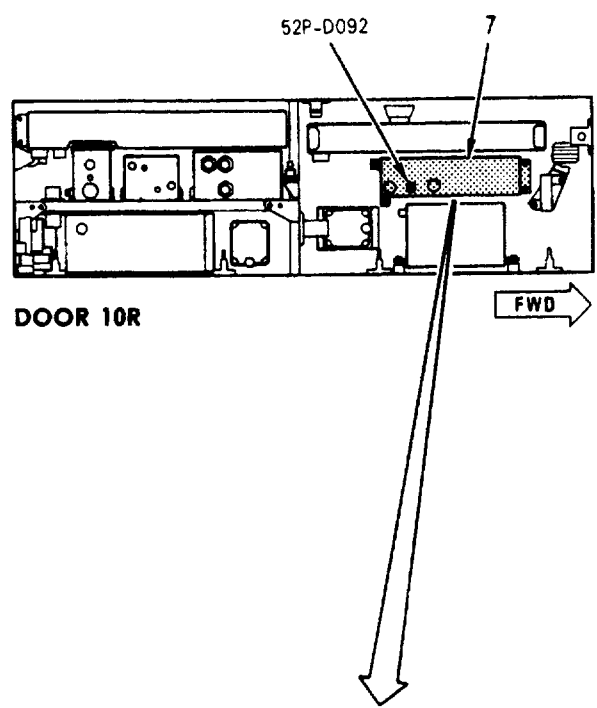


Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 2)



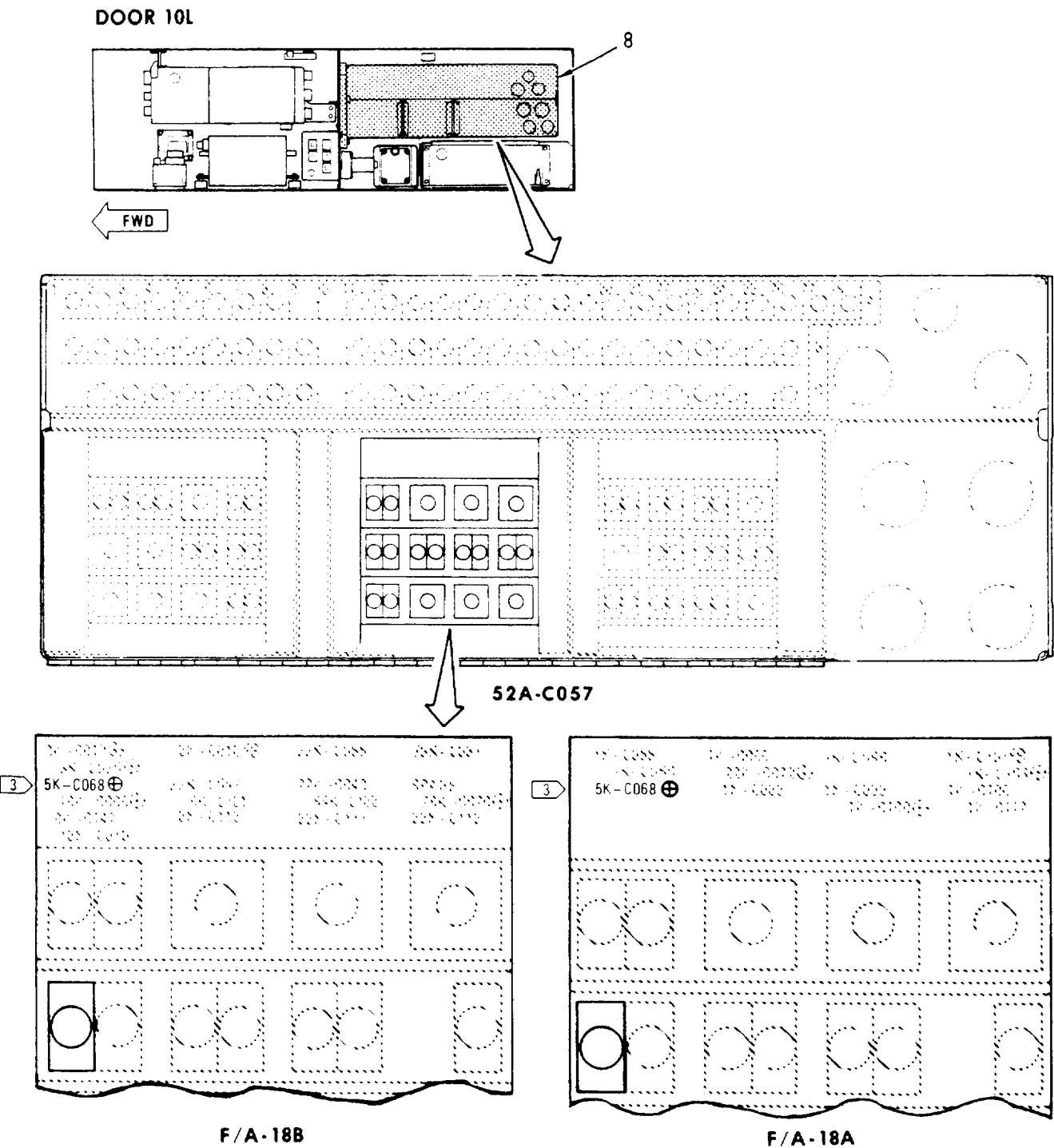
24010103

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 3)



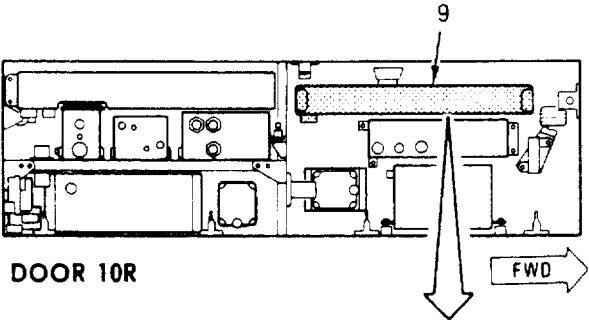
52A-D092		NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY	
ZONE	RES DEF	NOMENCLATURE	BUS
A9	5CBD063	FUEL DUMP	ESS 24/28VDC

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 4)



52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
	3 5K-C068	BINGO FUEL RELAY	

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 5)



52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
B19	5CBD044	FUEL QUAN IND	R115VACØB

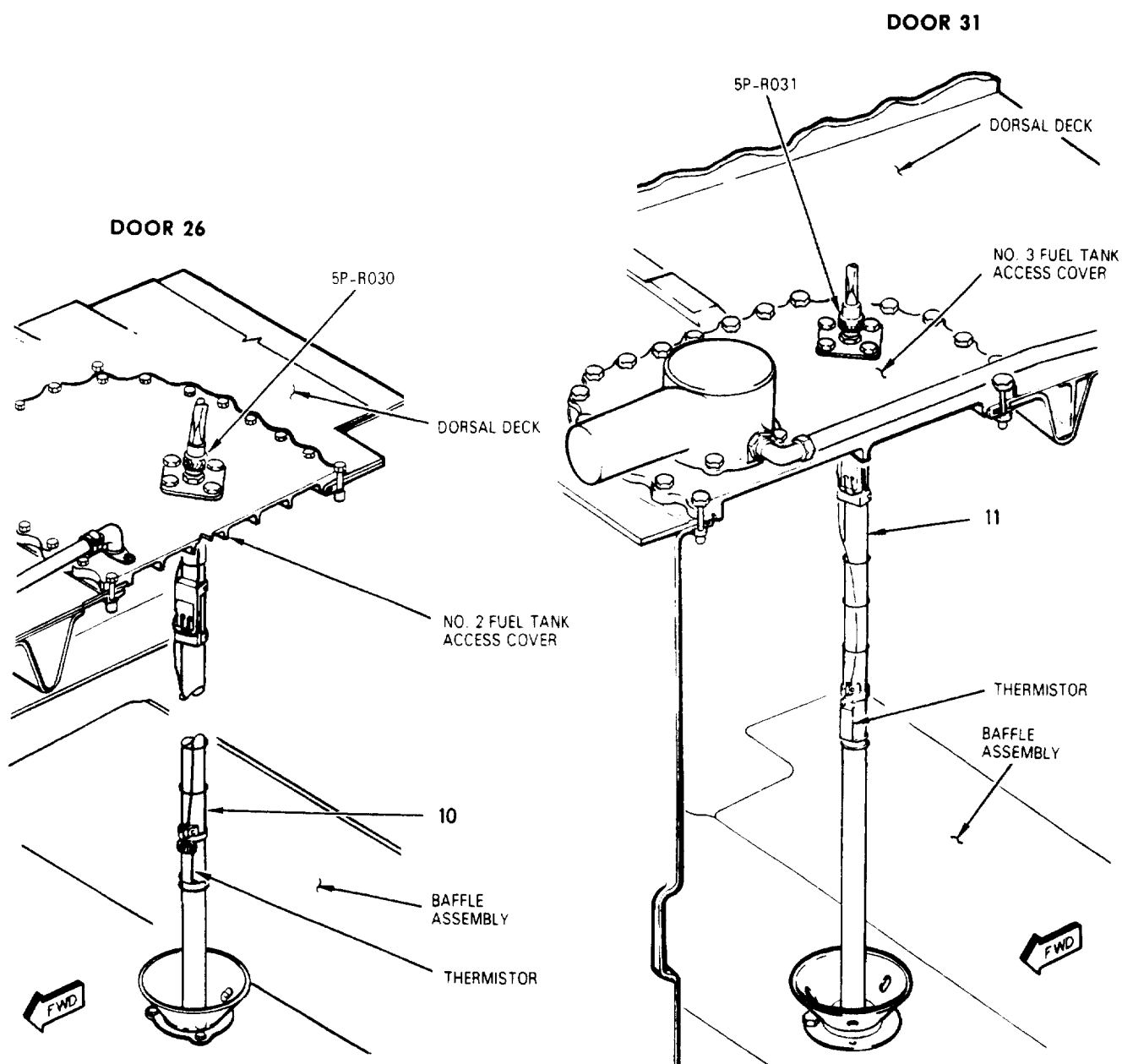
52A-D024 161360 AND UP



52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
B13	5CBD044	FUEL QUAN IND	R115VACØB

52A-D024 161353 THRU 161359

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 6)



24010107

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 7)

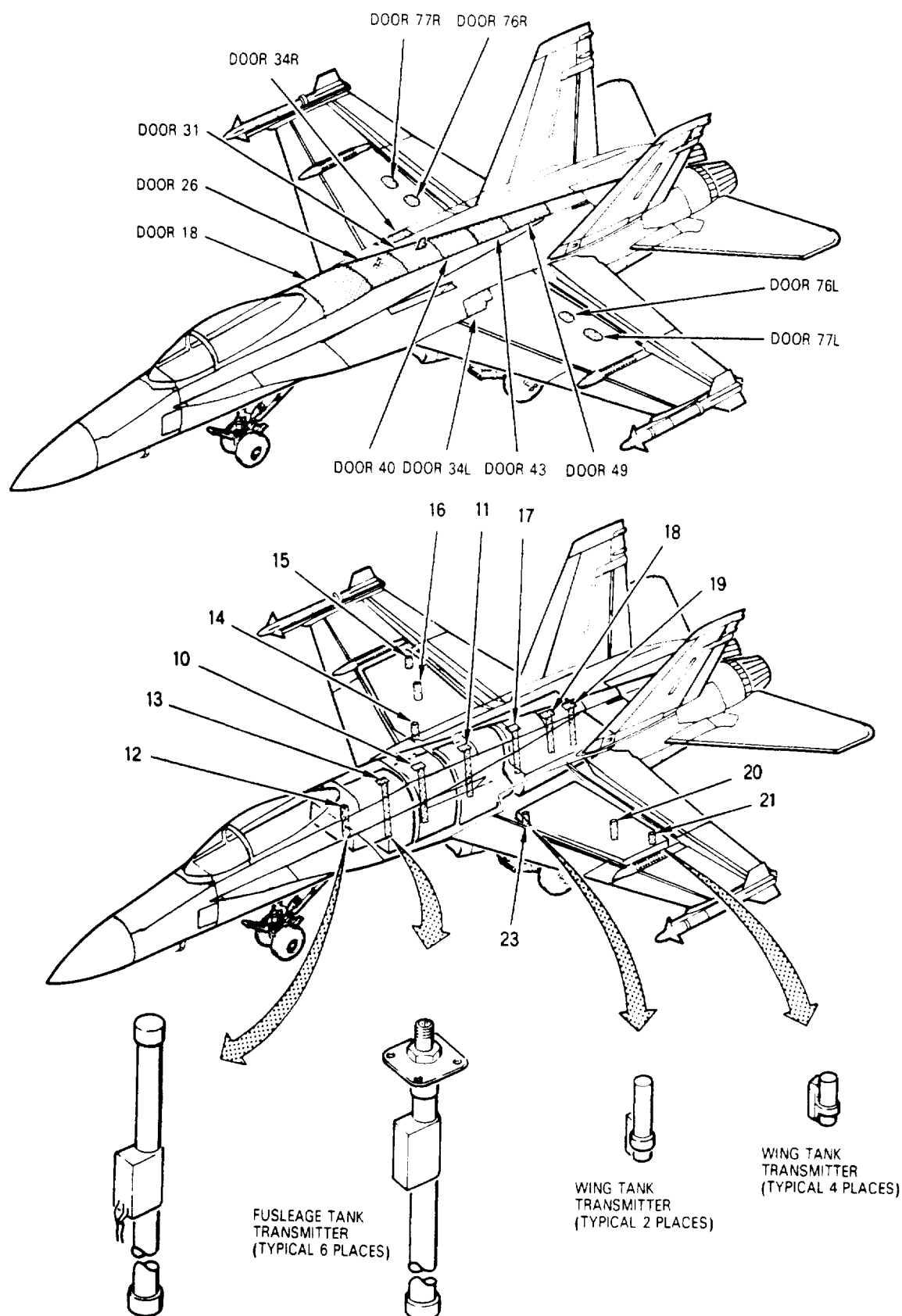
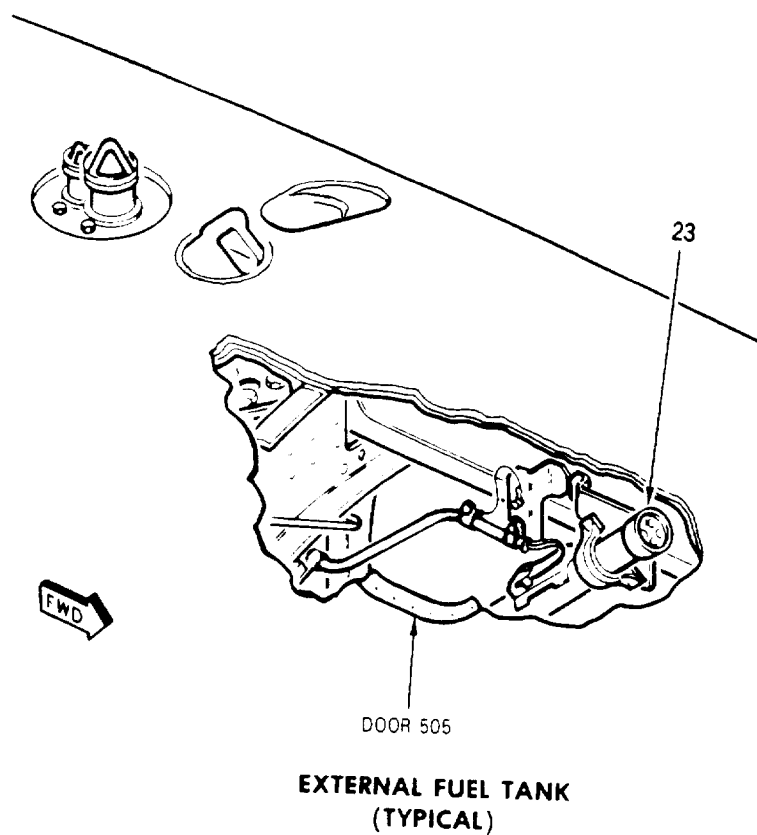


Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 8)



24010109

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 9)

Nomenclature	Index No.	Ref Des
EXTERNAL TANK FUEL QUANTITY TRANSMITTER	23	5A-Y062
FUEL QUANTITY GAGING INTERMEDIATE DEVICE	5	5A-F014
FUEL QUANTITY REPEATER INDICATOR	2	5A-K015
FUEL QTY INDICATOR	1	5A-H013
LEFT CENTER WING FUEL QUANTITY TRANSMITTER	20	5A-U038
LEFT INBOARD WING FUEL QUANTITY TRANSMITTER	22	5A-U039
LEFT OUTBOARD WING FUEL QUANTITY TRANSMITTER	21	5A-U037
NO. 1 FUEL TANK AFT FUEL QUANTITY TRANSMITTER	13	5A-F029
NO. 1 FUEL TANK FORWARD FUEL QUANTITY TRANSMITTER	12	5A-F028
NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY	9	52A-D024
NO. 2 FUEL TANK FUEL QUANTITY TRANSMITTER	10	5A-R030
NO. 3 FUEL TANK FUEL QUANTITY TRANSMITTER	11	5A-R031
NO. 3 RELAY PANEL ASSEMBLY	3	52A-E059
NO. 4 FUEL TANK AFT FUEL QUANTITY TRANSMITTER	19	5A-034
NO. 4 FUEL TANK CENTER FUEL QUANTITY TRANSMITTER	18	5A-R033
NO. 4 FUEL TANK FORWARD FUEL QUANTITY TRANSMITTER	17	5A-R032
NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY	7	52A-D092
NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	8	52A-C057
RIGHT CENTER WING FUEL QUANTITY TRANSMITTER	16	5A-V042
RIGHT INBOARD WING FUEL QUANTITY TRANSMITTER	14	5A-V043
RIGHT OUTBOARD WING FUEL QUANTITY TRANSMITTER	15	5A-V041
SIGNAL DATA CONVERTER CV-3493/ASM-612	6	85A-N002
SIGNAL DATA RECORDER RO-508/ASM-612	4	85A-F001
LEGEND		
1. AIRCRAFT CONNECTOR LOCATION ARE SHOWN IN A1-F18A()-WDM-000.		
2 161353 THRU 161761.		
3 161924 AND UP.		

Figure 1. Fuel Quantity Gaging System Component Locator (Sheet 10)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
COMPONENT LOCATOR
FUEL QUANTITY LOW LEVEL WARNING SYSTEM

Reference Material

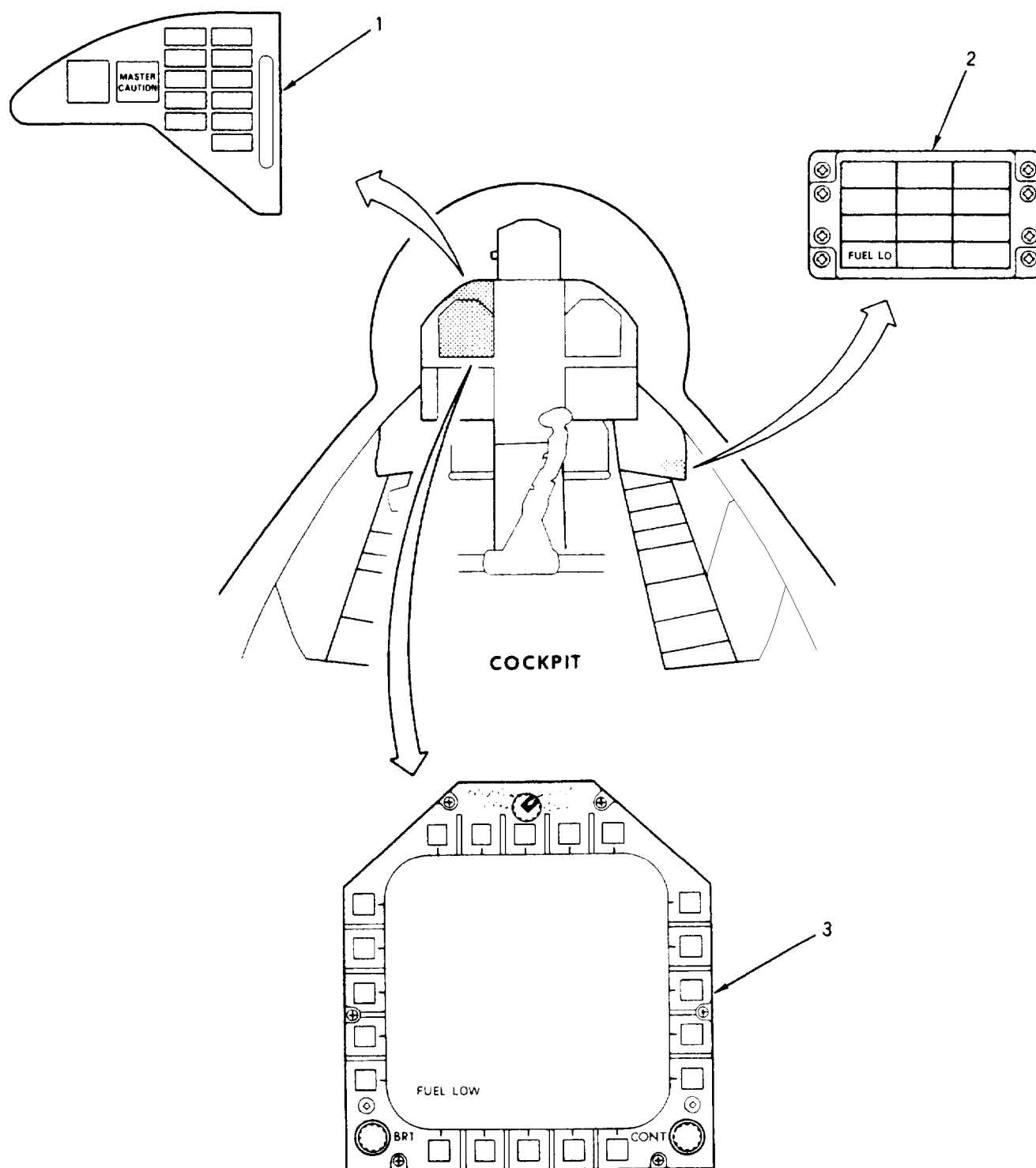
None

Alphabetical Index

Subject	Page No.
Fuel Quantity Low Level Warning System Component Locator, Figure 1	2

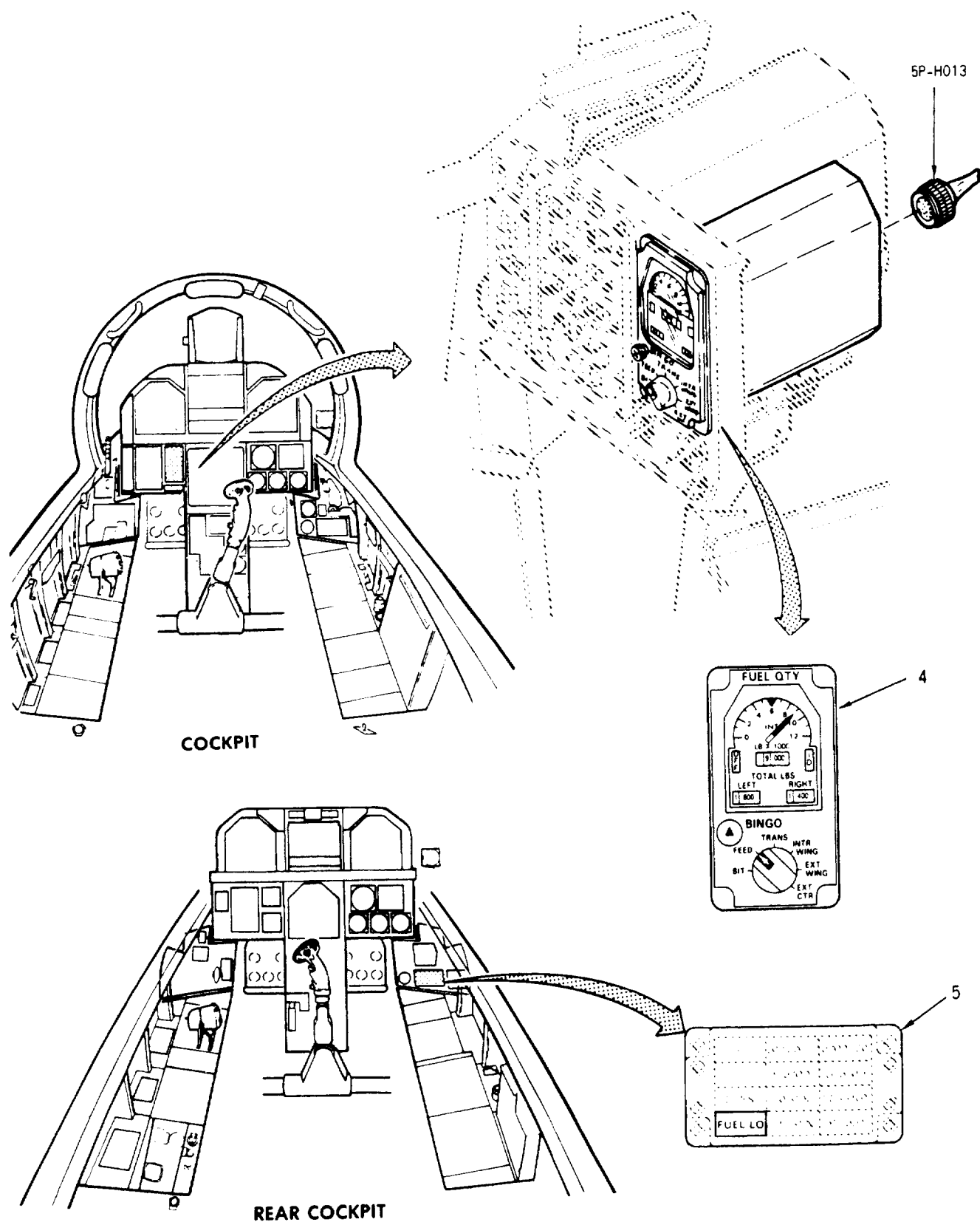
Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	—	Alternating Current Bus Isolation (ECP MDA-F/A-18-00121)	1 Jul 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—



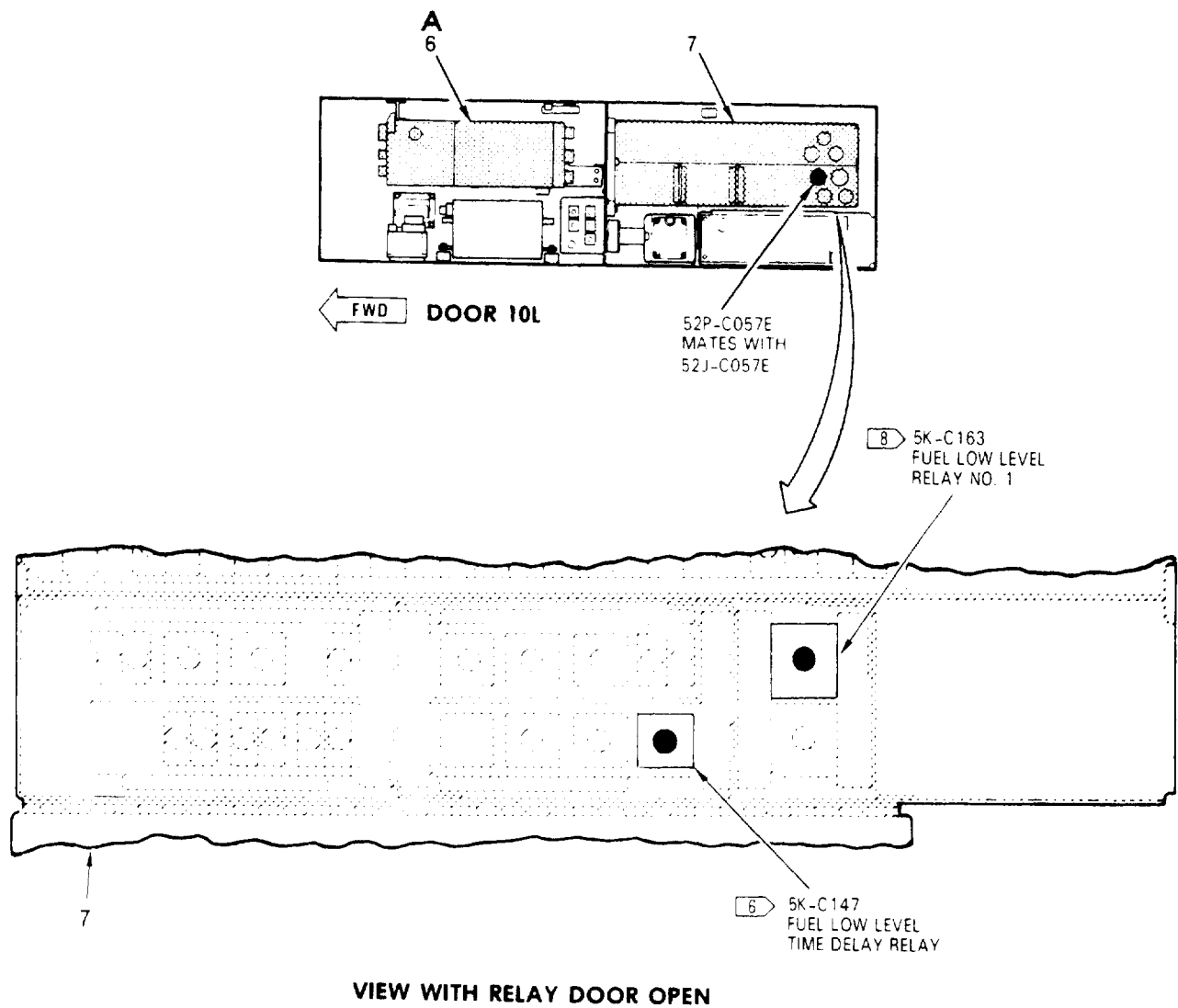
24020101

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 1 of 9)



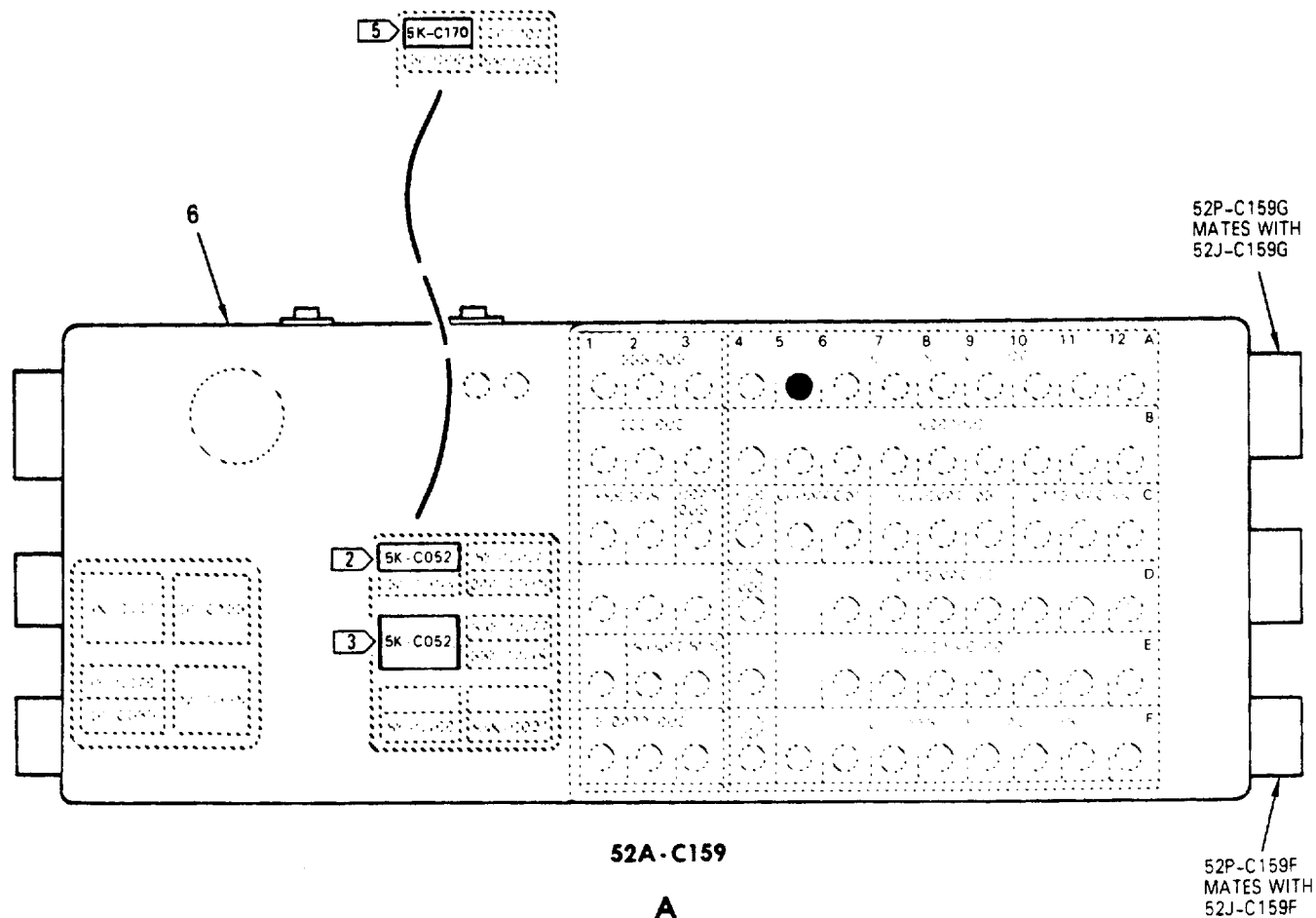
24020102

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 2)



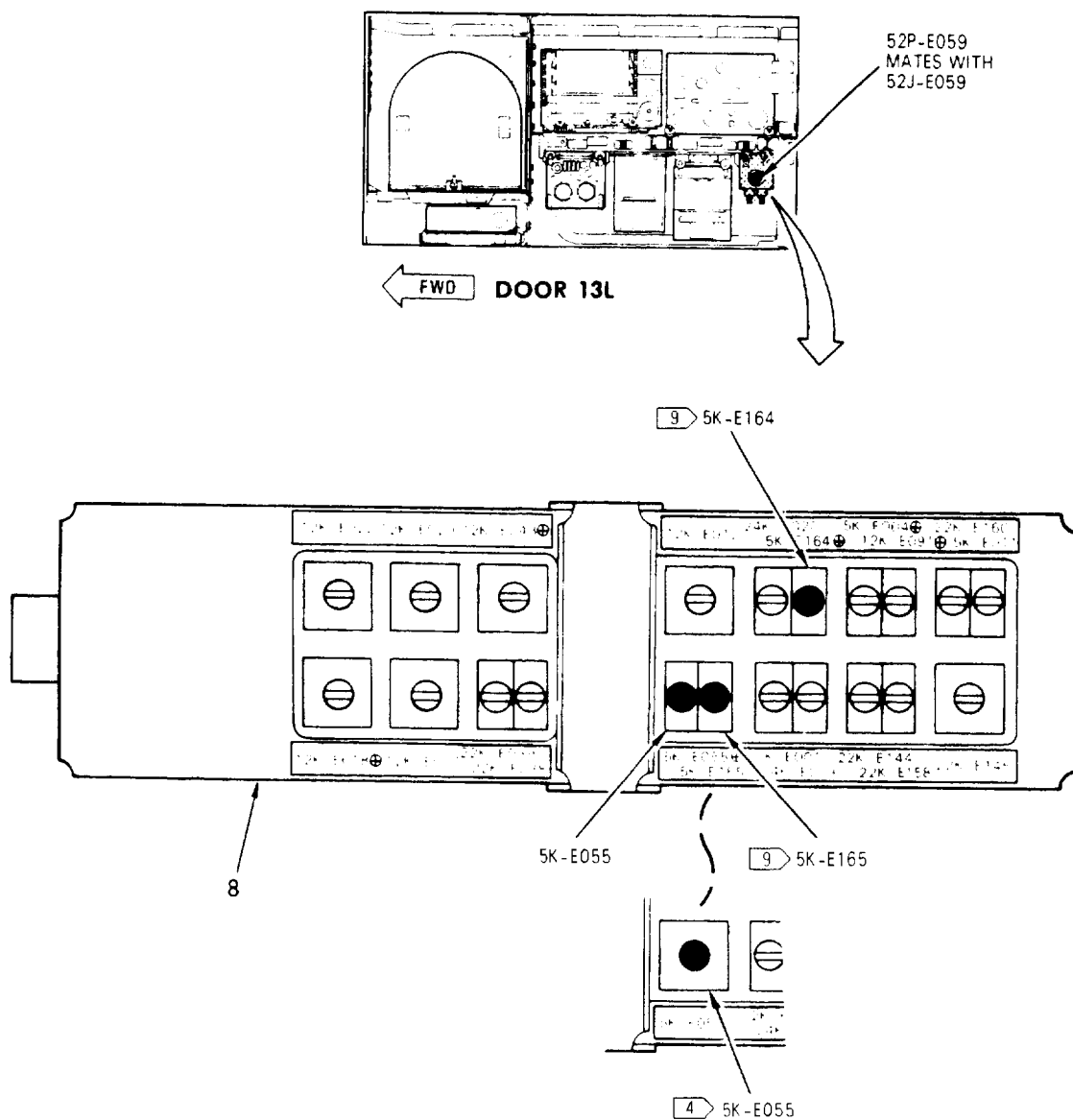
52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
	6 5K-C147	FUEL LOW LEVEL TIME DELAY RELAY	
	8 5K-C163	FUEL LOW LEVEL RELAY NO. 1	

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 3)



52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A5 E8	5CBC050 5CBC054 5K-C052 5K-C170	FUEL LOW LVL WRN LIQ LVL CONT FUEL LOW LEVEL RELAY NO. 2 FUEL LOW LEVEL RELAY NO. 3	L 28VDC L 115VAC ϕ B

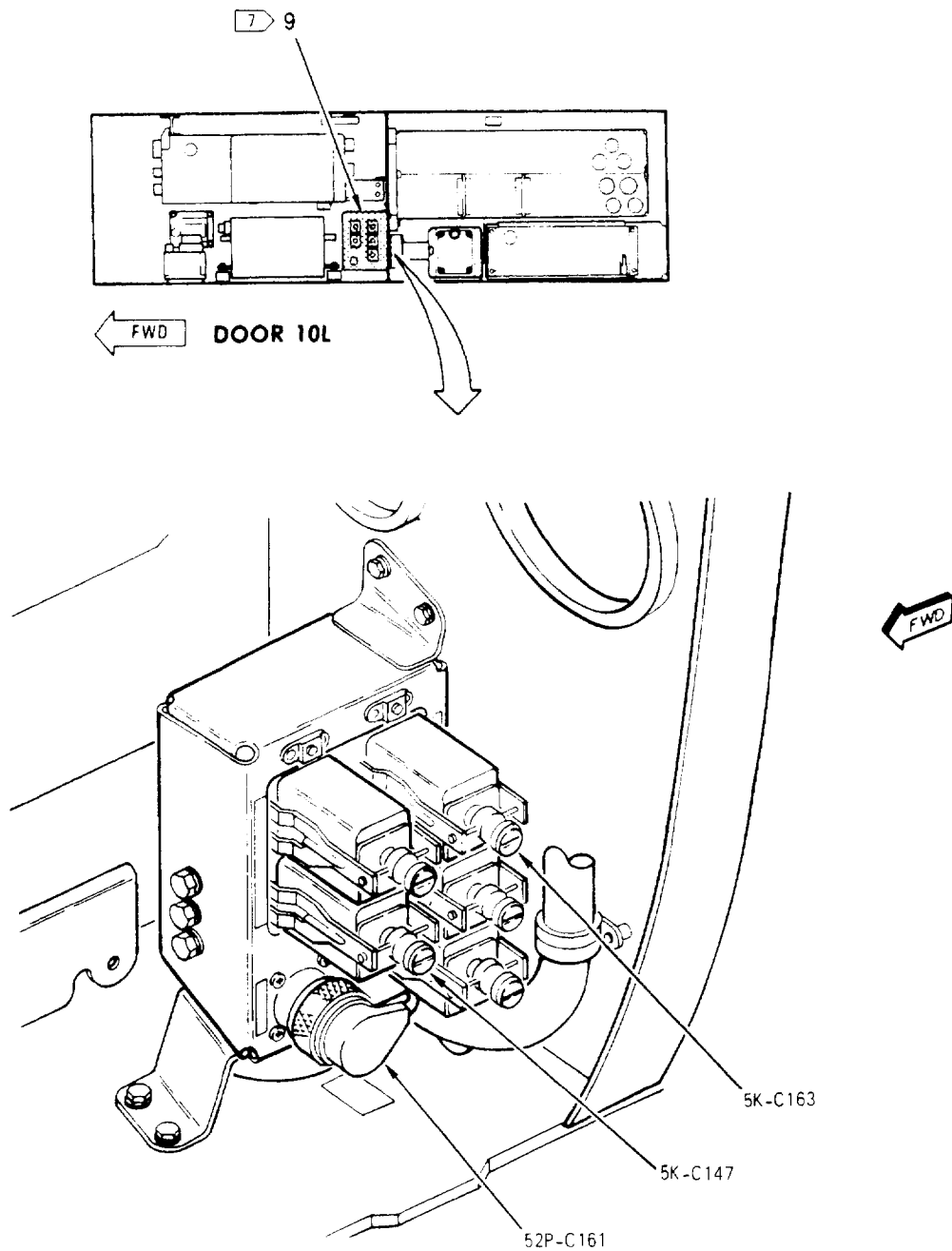
Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 4)



52A-E059 NO. 3 RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	PURPOSE
	5K-E055	FUEL LOW LEVEL BIT RELAY NO. 1	
	9 5K-E164	FUEL LOW LEVEL BIT RELAY NO. 2	
	9 5K-E165	FUEL LOW LEVEL BIT RELAY NO. 3	

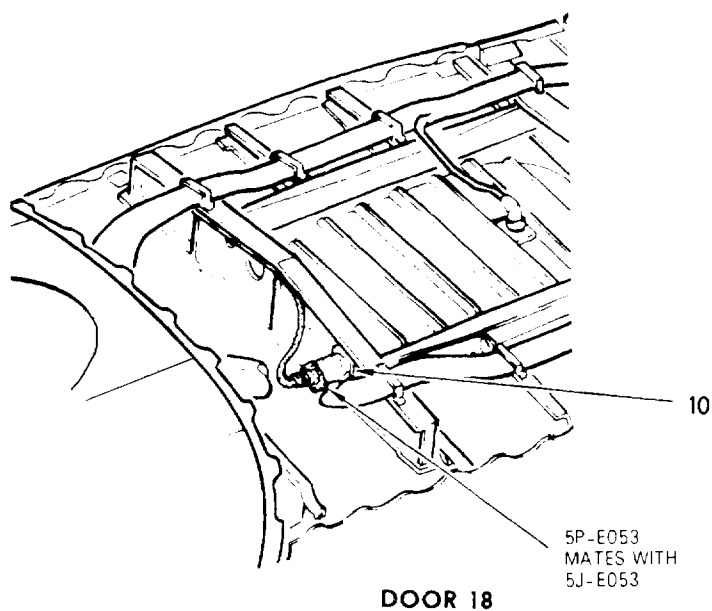
24020105

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 5)



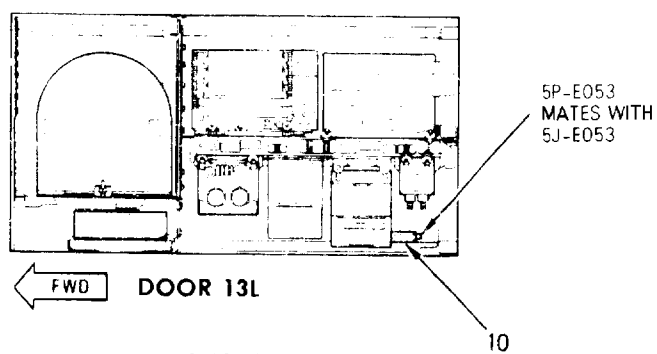
52A-C161 7 NO. 9 RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
	5K-C147	FUEL LOW LEVEL TIME DELAY RELAY	
	5K-C163	FUEL LOW LEVEL RELAY NO. 1	

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 6)



DOOR 18

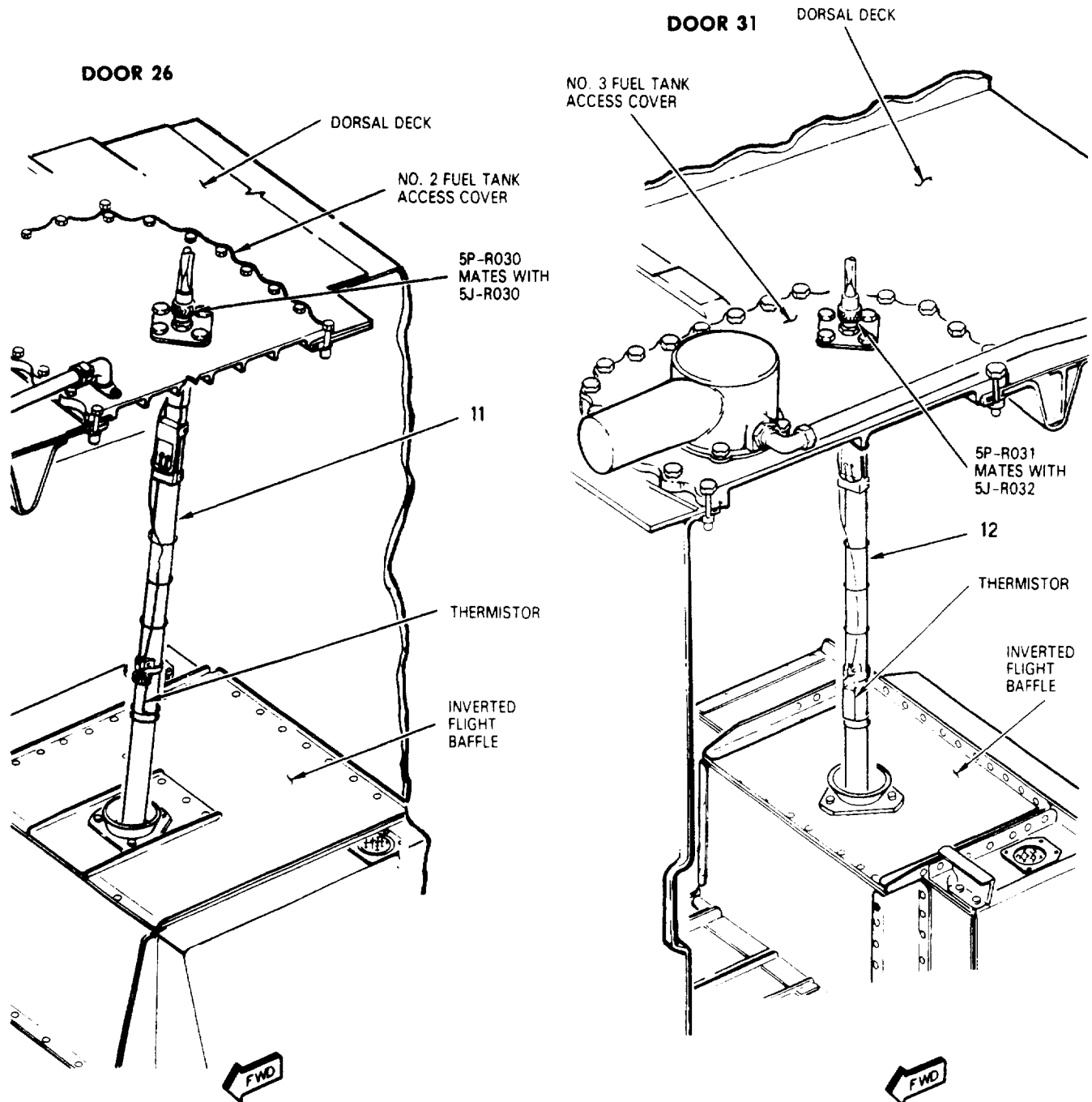
F/A-18A



DOOR 13L

F/A-18B

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 7)



24020108

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 8)










Nomenclature	Index No.	Ref Des
CAUTION LIGHT INDICATOR PANEL	2	8A-J042
FUEL QTY INDICATOR	4	5A-H013
LEFT DIGITAL DISPLAY INDICATOR IP-1317()	3	85A-G003
LH ADVISORY AND THREAT WARNING INDICATOR PANEL	1	52A-H073
FUEL LOW LEVEL SENSING CONTROL UNIT	10	5A-E053
NO. 2 FUEL TANK FUEL QUANTITY TRANSMITTER	11	5A-R030
NO. 3 FUEL TANK FUEL QUANTITY TRANSMITTER	12	5A-R031
NO. 3 RELAY PANEL ASSEMBLY	8	52A-E059
NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	7	52A-C057
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	6	52A-C159
 NO. 9 RELAY PANEL ASSEMBLY	9	52A-C161
REAR CAUTION LIGHT INDICATOR PANEL	5	8A-L127
<p style="text-align: center;">LEGEND</p> <p>1. AIRCRAFT CONNECTOR LOCATIONS ARE SHOWN IN A1-F18A()-WDM-000.</p> <p> 161353 THRU 161519.</p> <p> 161520 AND UP.</p> <p> 161353 THRU 161528.</p> <p> 161924 THRU 162477.</p> <p> 161353 THRU 161987 BEFORE F/A-18 AFC 48.</p> <p> 162394 AND UP. ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48.</p> <p> 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48.</p> <p> 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53.</p>		

Figure 1. Fuel Quantity Low Level Warning System Component Locator (Sheet 9)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
BINGO Caution Remains On - 161353 THRU 161761 BEFORE F/A-18 AFC 53, Table 6	13
BINGO Caution Remains On - 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53, Table 7	16
BINGO Not Displayed on Digital Display Indicator IP-1317(), 161353 THRU 161761 BEFORE F/A-18 AFC 53, Table 4	7
BINGO Not Displayed on Digital Display Indicator IP-1317(), 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53, Table 5	10
Fuel Quantity Repeater Indicator Reading Wrong, Table 3	6
ID Flag Shows Yellow With Electrical Power On, Table 2	4
OFF Flag Red and ID Flag Yellow With Electrical Power On, Table 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Oct 86	—

Table 1. OFF Flag Red and ID Flag Yellow With Electrical Power On

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Fuel Quantity Gaging System Schematic (A1-F18AC-460-500, WP012 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring FUEL QTY Indicator FUEL Quantity Gaging Intermediate Device		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <div>a. Do substeps listed below:</div> <div><div>(1) Turn off electrical power (A1-F18AC-LMM-000).</div><div>(2) Remove FUEL QTY indicator (A1-F18AC-460-300, WP160 00).</div></div>		

Table 1. OFF Flag Red and ID Flag Yellow With Electrical Power On (Continued)

Procedure	No	Yes
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 22vdc exist at 5P-H013 pin 55?	b	c
b. Do substeps listed below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity gaging intermediate (door 14R).		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 115vac exist at 5P-F014B pin 37?	d	e
c. Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00) and do step i	-	-
d. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10R (A1-F18AC-LMM-010).		
(3) Disconnect 52P-D024D from no. 2 circuit breaker panel assembly.		
(4) Does continuity exist from 62P-D024D pin 31 to 5P-F014B pin 37?	f	g
e. Does continuity exist from 5P-H013 pin 56 to 5P-F014B pin 55?	f	h
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-
g. Isolate between FUEL QUAN IND circuit breaker and no. 2 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP024 00) and do step i	-	-
h. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step i	-	-
i. If opened, disconnected, or removed during this procedure, make sure the items below are installed, connected or closed:		
(1) Install FUEL QTY indicator (A1-F18AC-460-300, WP160 00).		
(2) Connect 5P-F014B (door 14R).		
(3) Connect 52P-D024D (door 10R).		
(4) Close doors 10R and 14R (A1-F18AC-LMM-010)	-	-

Table 2. ID Flag Shows Yellow With Electrical Power On

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM -311)	Multimeter	
Materials Required		
None		
NOTE		
Fuel Quantity Gaging System Schematic (A1-F18AC-460-500, WP012 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Fuel Quantity Gaging Intermediate Device		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <div>a. Do substeps listed below:</div> <div>(1) Open door 14R (A1-F18AC-LMM-010).</div>		

Table 2. ID Flag Shows Yellow With Electrical Power On (Continued)

Procedure	No	Yes
(2) Turn off electrical power (A1-F18AC-LMM-000). (3) Disconnect 5P-F014B from fuel quantity intermediate device. (4) Remove FUEL QTY indicator (A1-F18AC-460-300, WP160 00). (5) Does continuity exist from: 5P-H013 pin 26 to 5P-F014B pin 26 5P-H013 pin 27 to 5P-F014B pin 27 5P-H013 pin 28 to 5P-F014B pin 28 5P-H013 pin 29 to 5P-F014B pin 29 5P-H013 pin 30 to 5P-F014B pin 30 5P-H013 pin 31 to 5P-F014B pin 31 5P-H013 pin 32 to 5P-F014B pin 32 5P-H013 pin 33 to 5P-F014B pin 33 5P-H013 pin 34 to 5P-F014B pin 34 5P-H013 pin 42 to 5P-F014B pin 42 5P-H013 pin 43 to 5P-F014B pin 43 5P-H013 pin 44 to 5P-F014B pin 44 5P-H013 pin 45 to 5P-F014B pin 45 5P-H013 pin 46 to 5P-F014B pin 46 5P-H013 pin 47 to 5P-F014B pin 47 5P-H013 pin 48 to 5P-F014B pin 48 5P-H013 pin 49 to 5P-F014B pin 49 5P-H013 pin 50 to 5P-F014B pin 50 5P-H013 pin 51 to 5P-F014B pin 51 5P-H013 pin 52 to 5P-F014B pin 52 5P-H013 pin 53 to 5P-F014B pin 53 5P-H013 pin 54 to 5P-F014B pin 54 5P-H013 pin 55 to 5P-F014B pin 55?	b	c
b. Isolate defective aircraft wiring (A1-F18AC-WDM-000) and do step d	-	-
c. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step d	-	-
d. If opened, disconnected, or removed during this procedure, make sure the items below are installed, connected or closed:		
(1) Install FUEL QTY indicator (A1-F18AC-460-300, WP160 00).		
(2) Connect 5P-F014B (door 14R).		
(3) Close door 14R (A1-F18AC-LMM-010)	-	-

Table 3. Fuel Quantity Repeater Indicator Reading Wrong

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Fuel Quantity Gaging System Schematic (A1-F18AC-460-500, WP012 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring FUEL QTY Indicator FUEL Quantity Gaging Intermediate Device		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <p>a. Do substeps listed below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p>		

Table 3. Fuel Quantity Repeater Indicator Reading Wrong (Continued)

Procedure	No	Yes
(2) Turn off electrical power (A1-F18AC-LMM-000). Disconnect 5P-F014B from fuel quantity intermediate device.		
(3) Remove fuel quantity repeater indicator (A1-F18AC-460-300, WP161 00).		
(4) Does continuity exist from:		
5P-K015 pin 11 to 5P-F014B pin 11		
5P-K015 pin 12 to 5P-F014B pin 12		
5P-K015 pin 13 to 5P-F014B pin 13		
5P-K015 pin 18 to 5P-F014B pin 18		
5P-K015 pin 15 to 5P-F014B pin 15		
5P-K015 pin 16 to 5P-F014B pin 16		
5P-K015 pin 17 to 5P-F014B pin 17		
5P-K015 pin 14 to 5P-F014B pin 14		
5P-K015 pin 19 to 5P-F014B pin 19		
5P-K015 pin 22 to 5P-F014B pin 22?	b	c
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000), then close door 14R and install fuel quantity repeater indicator (A1-F18AC-460-300, WP161 00).	-	-
c. Do substeps listed below:		
(1) Connect 5P-F014B to fuel quantity intermediate device.		
(2) Close door 14R (A1-F18AC-LMM-010).		
(3) Remove fuel quantity repeater indicator (A1-F18AC-460-300, WP156 00) and repeat BIT TEST. If malfunction still exists, replace the fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00)	-	-

**Table 4. BINGO Not Displayed on Digital Display Indicator IP-1317(),
161353 THRU 161761 BEFORE F/A-18 AFC 53**

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 4. BINGO Not Displayed on Digital Display Indicator IP-1317(), 161353 THRU 161761 BEFORE F/A-18 AFC 53 (Continued)

<div>NOTE</div> <p>Fuel Dump System Schematic, 161353 THRU 161761 (A1-F18AC-460-500, WP009 02) may be used while doing this procedure.</p> <p>For component location, refer to figure 1, WP024 01.</p> <p>Malfunction is caused by one of the items listed below:</p> <div>Aircraft Wiring FUEL QTY Indicator FUEL Quantity Gaging Intermediate Device No. 3 Relay Panel Assembly No. 5 Circuit Breaker Panel Assembly 5CBD063 FUEL DUMP Circuit Breaker 5K-E068 BINGO Fuel Relay</div>		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <div>1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity.</div>		
a. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-E059 from the no. 3 relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does a ground exist at 52P-E059 pin 96?	b	c
b. Does 28vdc exist at 52P-E059 pin 107?	d	e

**Table 4. BINGO Not Displayed on Digital Display Indicator IP-1317(),
161353 THRU 161761 BEFORE F/A-18 AFC 53 (Continued)**

Procedure	No	Yes
<p>c. Do substeps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 5P-F014B from fuel quantity intermediate device.</p> <p>(4) Remove FUEL QTY indicator (A1-F18AC-460-300, WP160 00).</p> <p>(5) Does continuity exist from:</p> <p>5P-F014B pin 10 to 52P-E059 pin 96</p> <p>5P-F014B pin 46 to 5P-H013 pin 46? f g</p>		
<p>d. Do substeps below:</p> <p>(1) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(2) Open door 10R (A1-F18AC-LMM-010).</p> <p>(3) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly.</p> <p>(4) Does continuity exist from 52P-E059 pin 107 to 52P-D092C pin 16? f i</p>		
<p>e. Do substeps listed below:</p> <p>(1) Open door 32R (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.</p> <p>(4) Does continuity exist from 52P-E059 pin 84 to 85P-N002C pin 10? f h</p>		
<p>f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step j - -</p>		
<p>g. Replace the FUEL QTY indicator (A1-F18AC-460-300, WP160 00). Repeat the BINGO TEST. If BINGO still does not display on cockpit Digital Display Indicator IP-1317/A, replace the fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step j - -</p>		
<p>h. Isolate between the 5K-E068 BINGO fuel relay and the no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step j - -</p>		

Table 4. BINGO Not Displayed on Digital Display Indicator IP-1317(), 161353 THRU 161761 BEFORE F/A-18 AFC 53 (Continued)

Procedure	No	Yes
i. Isolate between 5CBD063 FUEL DUMP circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step j	-	-
j. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) FUEL QTY indicator		
(2) 52P-D092C, 52P-E059, 5P-F014B, 85P-N002C		
(3) Doors 10R, 13L, 14R, and 32R	-	-

Table 5. BINGO Not Displayed on Digital Display Indicator IP-1317(), 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Fuel Quantity Gaging System Schematic, 161360 AND UP and Fuel Dump System Schematic, 161924 AND UP (A1-F18AC-460-500, WP012 00 and WP009 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP024 01.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring FUEL QTY Indicator FUEL Quantity Gaging Intermediate Device No. 5 Circuit Breaker Panel Assembly No. 7 Circuit Breaker/Relay Panel Assembly 5CBD063 FUEL DUMP Circuit Breaker 5K-C068 BINGO Fuel Relay	

Table 5. BINGO Not Displayed on Digital Display Indicator IP-1317(), 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 (Continued)



Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contact may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps listed below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C057G from the no. 7 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does a ground exist at 52P-C057G pin 34?	b	c
b. Does 28vdc exist at 52P-C057G pin 7?	d	e
c. Do substeps listed below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity intermediate device.		
(4) Remove FUEL QTY indicator (A1-F18AC-460-300, WP160 00).		
(5) Does continuity exist from:		
5P-F014B pin 10 to 52P-C057G pin 34		
5P-F014B pin 46 to 5P-H013 pin 46?	f	g

Table 5. BINGO Not Displayed on Digital Display Indicator IP-1317(), 161924 AND UP, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 (Continued)

Procedure	No	Yes
d. Inspect aircraft wiring from 52P-C057G pin 7 to 52P-D092C pin 16 (A1-F18A()-WDM-000). If wiring is good, isolate between the 5CBD063 FUEL DUMP circuit breaker and the no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step i	-	-
e. Do substeps listed below:		
(1) Open door 32R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(4) Does continuity exist from 52P-C057G pin 6 to 85P-N002C pin 10?	f	h
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-
g. Replace the FUEL QTY indicator (A1-F18AC-460-300, WP160 00). Repeat the BINGO TEST. If BINGO still does not display on cockpit Digital Display Indicator IP-1317(), replace the fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step i	-	-
h. Isolate between the 5K-C068 BINGO fuel relay and the no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step i	-	-
i. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) FUEL QTY indicator		
(2) 52P-C057G, 5P-F014B and 85P-N002C		
(3) Doors 10L, 32R, and 14R	-	-

**Table 6. BINGO Caution Remains On - 161353 THRU 161761
BEFORE F/A-18 AFC 53**

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation 260-6XLP (AN/USM-311)	Nomenclature Multimeter	
Materials Required		
None		
NOTE		
Fuel Dump System Schematic, 161353 THRU 161761 (A1-F18AC-460-500, WP009 00) may be used while doing this procedure.		
For component locations, refer to figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring FUEL QTY Indicator FUEL Quantity Gaging Intermediate Device No. 3 Relay Panel Assembly No. 5 Circuit Breaker Panel Assembly 5CBD063 FUEL DUMP Circuit Breaker 5K-E068 BINGO Fuel Relay		
Procedure	No	Yes
		
To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.		
NOTE		
The question used in logic tree “Does continuity exist?” means to test for the items listed below:		
<ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		

**Table 6. BINGO Caution Remains On - 161353 THRU 161761
BEFORE F/A-18 AFC 53 (Continued)**

Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Open door 32R (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.</p> <p>(4) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(5) Does a ground exist at 85P-N002C, pin 10?</p>	b	c
<p>b. Do substeps below:</p> <p>(1) Open door 13L (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 52P-E059 from no. 3 relay panel assembly.</p> <p>(4) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(5) Does 28vdc exist at 52P-E059, pin 107?</p>	d	e
<p>c. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step 1</p>	-	-
<p>d. Do substeps below:</p> <p>(1) Open door 10R (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly.</p> <p>(4) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(5) Does 28vdc exist at 52J-D092C, pin 16?</p>	f	g
<p>e. Does a ground exist at 52P-E059, pin 96?</p>	h	i
<p>f. Isolate between 5CBD063 FUEL DUMP circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step 1</p>	-	-

**Table 6. BINGO Caution Remains On - 161353 THRU 161761
BEFORE F/A-18 AFC 53 (Continued)**

Procedure	No	Yes
g. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-D092C, pin 16 to 52P-E059, pin 107 and do step 1	-	-
h. Do substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity gaging intermediate device (ID).		
(4) Remove FUEL QTY indicator (A1-F18AC-460-300, WP160 00).		
(5) Does continuity exist from:		
5P-F014B pin 10 to 52P-E059 pin 96		
5P-F014B pin 46 to 5P-H0143 pin 46		
85P-N002C pin 10 to 52P-E059 pin 84?	j	k
i. Isolate between 5K-E068 BINGO fuel relay and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step 1	-	-
j. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step 1	-	-
k. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step 1. If malfunction still exists replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00) and do step 1	-	-
l. If disconnected, opened, or removed during this procedure, make sure the items listed below are installed, connected, or closed:		
(1) FUEL QTY indicator		
(2) Connectors 5P-F014B, 52P-D092C, 52P-E059, 85P-N002C		
(3) Doors 10R, 13L, 14R, and 32R	-	-

**Table 7. BINGO Caution Remains On - 161924 AND UP; ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53**

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

Fuel Dump System Schematic, 161924 AND UP (A1-F18AC-460-500, WP009 00)
may be used while doing this procedure.

For component location, refer to figure 1, WP024 01.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
FUEL QTY Indicator
FUEL Quantity Gaging Intermediate Device
No. 7 Circuit Breaker/Relay Panel Assembly
No. 5 Circuit Breaker Panel Assembly
5CBD063 FUEL DUMP Circuit Breaker
5K-C068 BINGO Fuel Relay

Procedure

No

Yes

CAUTION

To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.

NOTE

The question used in logic tree "Does continuity exist?" means to test for the items listed below:

1. Pin to pin test per procedural step.
2. Shorts to ground.
3. Shorts between surrounding pins on connectors.
4. Shorts between shield and conductors.
5. Shield continuity.

**Table 7. BINGO Caution Remains On - 161924 AND UP; ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 (Continued)**

Procedure	No	Yes
a. Do substeps below:		
(1) Open door 32R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 85P-N002C from Signal Data Converter CV-3493/ASM-612.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does a ground exist at 85P-N002C, pin 10?	b	c
b. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C057G from no. 7 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C057G, pin 7?	d	e
c. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-200, WP003 00) and do step 1	-	-
d. Do substeps below:		
(1) Open door 10R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-D092C from no. 5 circuit breaker panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52J-D092C, pin 16?	f	g
e. Does a ground exist at 52P-C057G, pin 34?	h	i
f. Isolate between 5CBD063 FUEL DUMP circuit breaker and no. 5 circuit breaker panel assembly wiring (A1-F18AC-420-300, WP026 00) and do step 1	-	-

**Table 7. BINGO Caution Remains On - 161924 AND UP; ALSO
161353 THRU 161761 AFTER F/A-18 AFC 53 (Continued)**

Procedure	No	Yes
g. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from 52P-D092C, pin 16 to 52P-C057G, pin 7 and do step 1	-	-
h. Do substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity gaging intermediate device. (ID)		
(4) Remove FUEL QTY indicator (A1-F18AC-460-300, WP160 00).		
(5) Does continuity exist from:		
5P-F014B, pin 10 to 52P-C057G, pin 34		
5P-F014B, pin 46 to 5P-H013, pin 46		
85P-N002C, pin 10 to 52P-C057G, pin 6?	j	k
i. Isolate between 5K-C068 BINGO fuel relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step 1	-	-
j. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step 1	-	-
k. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step 1. If malfunction still exists replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00) and do step 1	-	-
l. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) FUEL QTY indicator		
(2) Connectors 5P-F014B, 52P-C057G, 52P-D092C, 85P-N002C		
(3) Doors 10L, 10R, 14R and 32R	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING PART I
FUEL LOW LEVEL WARNING SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
FUEL LO Caution Not Displayed On Caution Light Indicator Panel When Selecting BIT, Table 1	2
FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() When Selecting BIT, Table 2	4
FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light, Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48, Table 3	6
Fuel Low Or Bingo Voice Alert Not Heard In Headset, Table 4	11

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Jul 86	—
F/A-18 AFC 43	—	Alternating Current Bus Isolation (ECP MDA- F/A-18-00121)	1 Dec 86	—

Table 1. FUEL LO Caution Not Displayed On Caution Light Indicator Panel When Selecting BIT

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation

260-6XLP (AN/USM-311)

Nomenclature

Multimeter

Materials Required

None

NOTE

Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 02 or WP013 03) may be used while doing this procedure.

For component location, refer to figure 1, WP024 02.

Malfunction is caused by one of the items listed below:

Aircraft Wiring

Caution Light Indicator Panel

No. 7 Circuit Breaker/Relay Panel Assembly

No. 9 Relay Panel Assembly

5K-C147 Fuel Low Level Time Delay Relay

Procedure	No	Yes
<div>CAUTION</div> <div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</div> <div>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</div> <div>52P-C057E</div> </div> <div>NOTE</div> <div> <div>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</div> <div> <div>1. Pin to pin test per procedural step.</div> <div>2. Shorts to ground.</div> <div>3. Shorts between surrounding pins on connectors.</div> <div>4. Shorts between shield and conductors.</div> <div>5. Shield continuity.</div> </div> </div>		

Table 1. FUEL LO Caution Not Displayed On Caution Light Indicator Panel When Selecting BIT (Continued)

Procedure	No	Yes
a. On cockpit INTR LT control box panel assembly, set the LT TEST switch to TEST. Did FUEL LO light come on?	b	c
b. Replace bulb (A1-F18AC-440-300, WP023 00) and do step h	-	-
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Remove the caution light indicator panel (A1-F18AC-440-300, WP023 00).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) On the FUEL QTY indicator, set the fuel quantity selector knob to BIT and hold. After approximately 10 seconds, does a ground exist at 8P-J042 pin 11?	d	e
d. Do applicable substep below:		
(1) On 161353 THRU 161987 BEFORE F/A-18 AFC 48:		
(a) Open door 10L (A1-F18AC-LMM-010).		
(b) Turn off electrical power (A1-F18AC-LMM-000).		
(c) Disconnect 52P-C057E from no. 7 circuit breaker/relay panel assembly.		
(d) Does continuity exist from 52P-C057E pin 108 to 8P-J042 pin 11?	f	g
(2) On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48:		
(a) Open door 10L (A1-F18AC-LMM-010).		
(b) Turn off electrical power (A1-F18AC-LMM-000).		
(c) Disconnect 52P-C161 from no. 9 relay panel assembly.		
(d) Does continuity exist from 52P-C161 pin 36 to 8P-J042 pin 11?	f	g
e. Replace caution light indicator panel (A1-F18AC-440-300, WP023 00) and do step h	-	-
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step h	-	-
g. Do applicable substep below:		
(1) On 161353 THRU 161987 BEFORE F/A-18 AFC 48, isolate between the 5K-C147 fuel low level time delay relay and the no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP028 00 or WP029 00), and do step h	-	-
(2) On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, isolate between the 5K-C147 fuel low level time delay relay and the no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step h	-	-

Table 1. FUEL LO Caution Not Displayed On Caution Light Indicator Panel When Selecting BIT (Continued)

Procedure	No	Yes
h. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Caution light indicator panel (A1-F18AC-440-300, WP023 00)		
(2) Connector 52P-C057E or 52P-C161		
(3) Door 10L (A1-F18AC-LMM-010)	-	-

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() When Selecting BIT

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Fuel Quantity Low Level Warning System Schematics (A1-F18AC-460-500, WP013 03) may be used while doing this procedure.	
For component location, refer to figure 1, WP024 02.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
No. 7 Circuit Breaker/Relay Panel Assembly	
No. 9 Relay Panel Assembly	
5K-C147 Fuel Low Level Time Delay Relay	

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() When Selecting BIT (Continued)


Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C057E</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps listed below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 85P-F001A from Signal Data Recorder RO-508/ASM-612 (door 14R).		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Set the FUEL QTY selector knob to BIT and hold. After approximately 10 seconds, does a ground exist at 85P-F001A pin 59?	c	b
b. Do applicable substep below:		
(1) On 161353 THRU 161987 BEFORE F/A-18 AFC 48:		
(a) Open door 10L (A1-F18AC-LMM-010).		
(b) Turn off electrical power (A1-F18AC-LMM-000).		
(c) Disconnect 52P-C057E from no. 7 circuit breaker/relay panel.		
(d) Does continuity exist from 52P-C057E pin 106 to 85P-F001A pin 59?	d	e
(2) On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48:		
(a) Open door 10L (A1-F18AC-LMM-010).		

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() When Selecting BIT (Continued)

Procedure	No	Yes
(b) Turn off electrical power (A1-F18AC-LMM-000).		
(c) Disconnect 52P-C161 from no. 9 relay panel assembly.		
(d) Does continuity exist from 52P-C161 pin 35 to 85P-F001A pin 59?	d	e
c. Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00) and do step f	-	-
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step f	-	-
e. Do applicable substeps below:		
(1) On 161353 THRU 161987 BEFORE F/A-18 AFC 48, isolate between the 5K-C147 fuel low level time delay relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP028 00 or WP029 00), and do step f	-	-
(2) On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, isolate between 5K-C147 fuel low level time delay relay and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00), and do step f	-	-
f. Do substeps listed below:		
(1) Connect 85P-F001A, 52P-C161 and 52P-C057E.		
(2) Close doors 10L and 14R (A1-F18AC-LMM-010)	-	-

Table 3. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 3. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48 (Continued)


NOTE		
<p>The Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 02) may be used while doing this procedure.</p> <p>For component location, refer to figure 1, WP024 02.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Fuel Low Level Sensing Control Unit FUEL QTY Indicator No. 3 Relay Panel Assembly No. 7 Circuit Breaker/Relay Panel Assembly No. 8 Circuit Breaker/Relay Panel Assembly 5CBC050 FUEL LOW LVL WRN Circuit Breaker 5CBC054 LIQ LVL CONT Circuit Breaker 5K-C147 Fuel Low Level Time Delay Relay 5K-E055 Fuel Low Level Bit Relay</p>		
Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C057E</p> <div style="text-align: center;"> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield conductors. 5. Shield continuity. </div>		

Table 3. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48 (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 8 circuit breaker/relay panel assembly, are LIQ LVL CONT and FUEL LOW LVL WRN circuit breakers set?	b	c
b. Set circuit breakers and close door 10L (A1-F18AC-LMM-010)	-	-
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C057E from the no. 7 circuit breaker/relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52P-C057E pin 97?	d	e
d. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159G from the no. 8 circuit breaker/relay panel assembly.		
(3) Does continuity exist from 52P-C159G pin 46 to 52P-C057E pin 97?	f	g
e. Do substeps below:		
(1) Set FUEL QTY selector knob to BIT and hold.		
(2) Does 28vdc exist at 52P-C057E pin 98?	h	i
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step w	-	-
g. Isolate between the 5CBC050 FUEL LOW LVL WRN and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step w	-	-
h. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159F from the no. 8 circuit breaker/relay panel assembly.		
(3) Does continuity exist from 52P-C159F pin 19 to 52P-C057E pin 98?	f	j

Table 3. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48 (Continued)

Procedure	No	Yes
i. Isolate between 5K-C147 fuel low level time delay relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00 and do step w	-	-
j. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159F from no. 8 circuit breaker/relay panel assembly (door 10L).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Set FUEL QTY selector knob to BIT and hold. Does 28vdc exist at 52P-C159F pin 5?	k	l
k. Does 115vac exist at 52J-C159G pin 43?	m	n
l. Isolate between 52TBC159 terminal board and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00), and do step w	-	-
m. Isolate between 5CBC054 LIQ LVL CONT circuit breaker and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step w	-	-
n. Do substeps below:		
(1) On F/A-18A, remove door 18. On F/A-18B, open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-E053 from fuel low level sensing control unit.		
(4) Does continuity exist from:		
52P-C159G pin 43 to 5P-E053 pin 6		
52P-C159G pin 46 to 5P-E053 pin 10?	f	o
o. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Set the FUEL QTY selector knob to BIT and hold. Does approximately 51 ohms resistance exist between:		
5P-E053 pin 1 and 5P-E053 pin 2		
5P-E053 pin 3 and 5P-E053 pin 4?	p	q

Table 3. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48 (Continued)

Procedure	No	Yes
<p>p. Do substeps below:</p> <p>(1) Open door 13L (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 52P-E059 from the no. 3 relay panel assembly.</p> <p>(4) Does continuity exist from:</p> <p>5P-E053 pin 1 to 52P-E059 pin 111 5P-E053 pin 2 to 52P-E059 pin 110 5P-E053 pin 3 to 52P-E059 pin 112 5P-E053 pin 4 to 52P-E059 pin 109?</p>	f	r
<p>q. Does continuity exist from:</p> <p>5P-E053 pin 5 to ground 5P-E053 pin 8 to ground 5P-E053 pin 9 to 52P-C159F pin 5?</p>	f	s
<p>r. Do substeps below:</p> <p>(1) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(2) Set the FUEL QTY selector knob to BIT and hold. Does approximately 41 ohms resistance exist at 52P-E059 pin 108?</p>	t	u
<p>s. Replace the fuel low level sensing control unit (A1-F18AC-460-300, WP171 00) and do step w</p>	-	-
<p>t. Do substeps below:</p> <p>(1) Remove the FUEL QTY indicator (A1-F18AC-460-300, WP160 00).</p> <p>(2) Does continuity exist from:</p> <p>5P-H013 pin 24 to 52P-E059 pin 108 5P-H013 pin 25 to ground?</p>	f	v
<p>u. Isolate between the 5K-E055 fuel low level bit relay and the no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP036 00), and do step w</p>	-	-
<p>v. Replace the FUEL QTY indicator (A1-F18AC-460-300, WP160 00) and do step w</p>	-	-

Table 3. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48 (Continued)

Procedure	No	Yes
w. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 52P-C057E, 52P-C159F, 52P-C159G, 52P-E059, 5P-E053		
(2) FUEL QTY indicator (A1-F18AC-460-300, WP160 00)		
(3) Doors 10L, 13L and 18 (A1-F18AC-LMM-010)	-	-

Table 4. Fuel Low Or Bingo Voice Alert Not Heard In Headset

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Intercommunication and Audio System Functional Schematic (A1-F18AC-600-500, WP013 00) may be used while doing this procedure.	
For component locator, refer to WP012 00, A1-F18AC-600-500.	
Malfunction is caused by one of the items below:	
Aircraft Wiring	
Control Converter C-10382/A	
Intercommunication Amplifier-Control AM-6979/A	

Table 4. Fuel Low Or Bingo Voice Alert Not Heard In Headset (Continued)

Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do the substeps below:		
(1) Remove electrical power (A1-F18AC-LMM-000).		
(2) Open door 13R (A1-F18AC-LMM-010).		
(3) Disconnect 82P-F001A from Control-Converter C-10382/A.		
(4) Remove Intercommunication Amplifier-Control AM-6979/A (A1-F18AC-600-300, WP012 00).		
(5) Does continuity exist from:		
82P-F001A pin 7 to 76P-H009A pin 19		
82P-F001A pin 8 to 76P-H009A pin 25		
82P-F001A pin 13 to 76P-H009A pin 9		
82P-F001A pin 14 to 76P-H009A pin 8		
82P-F001A pin 15 to 76P-H009A pin 7?	b	c
b. Isolate defective aircraft wiring (A1-F18A()-WDM-000). Do step d	-	-
c. Malfunction has been isolated to Intercommunication Amplifier-Control AM-6979/A (A1-F18AC-600-300, WP012 00) or Control-Converter C-10382/A (A1-F18AC-741-300, WP005 00). Do step d	-	-
d. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) 82P-F001A		
(2) Door 13R (A1-F18AC-LMM-010)		
(3) Intercommunication Amplifier-Control AM-6979/A (A1-F18AC-600-300, WP012 00)	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING PART II
FUEL LOW LEVEL WARNING SYSTEM

Reference Material

Fuel System	A1-F18AC-460-300
Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
FUEL LO Not On When Fuel Amount Less Than 800 ±100 LB In No. 2 or No. 3 Fuel Tank, Table 1	2
FUEL LO On When Fuel Amount Above 800 ±100 LB In No. 2 or No. 3 Fuel Tank, Table 2	5
Fuel Low Level Warning Troubleshooting Component Locator, Figure 1	10

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	—	Alternating Current Bus Isolation (ECP MDA-F/A-18-00121)	1 Dec 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055/C1)	1 Dec 86	—

Table 1. FUEL LO Not On When Fuel Amount Less Than 800 ± 100 LB
In No. 2 or No. 3 Fuel Tank

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

Part Number or Type Designation	Nomenclature
77/BN	Multimeter
74D510003-1003 (74D510003-1001)	Fuel - Liquid Oxygen Gages A/E24T-159 Test Set
74D510012-1001	Fuel/Lox Gaging Test Set Extension Cable

Materials Required

None

NOTE


Fuel Quantity Low Level Warning System Schematic may be used while doing this test (A1-F18AC-460-500, WP013 00).

For component location, refer to figure 1, WP024 02.

Malfunction is caused by one of the items listed below:

- Aircraft Wiring
- Tank No. 2 Fuel Quantity Transmitter
- Tank No. 3 Fuel Quantity Transmitter

**Table 1. FUEL LO Not On When Fuel Amount Less Than 800 ± 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Turn on external electrical power (A1-F18AC-LMM-000).		
(2) Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).		
(3) If required, defuel aircraft (A1-F18AC-PCM-000) until tanks 2 and 3 fuel amount is 600 lb (both tanks at fuel low level warning).		
(4) Set and hold FUEL QTY selector knob to BIT. Did FUEL LO display on caution light indicator panel and Left Digital Display Indicator IP-1317()?	b	c
b. On 161353 THRU 161761 BEFORE F/A-18 AFC 53 AND 48, do table 3, WP026 00. On 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48, do table 1, WP026 02. On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, do table 2 WP026 02	-	-
c. Do substeps below:		
(1) Remove doors 26 and 31 (A1-F18AC-LMM-010).		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle (fig 1, detail A) in the nose wheelwell, left side.		
(4) Connect P3 on test cable W6 to service ground jack in forward, nose wheelwell.		
(5) Connect P2 on test cable W6 to J3 on test set.		
(6) Connect grounding connector on test cable W6 to GND stud on test set.		

**Table 1. FUEL LO Not On When Fuel Amount Less Than 800 ± 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)**

Procedure	No	Yes
<p>(7) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set.</p> <p>(8) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W2.</p> <p>(9) Disconnect connector 5P-R030 (door 26). Connect P2 on test cable W2 to 5J-R030. Connect P3 to 5P-R030.</p> <p>(10) Set switches on test set (detail B) as listed below:</p> <p>MEASURE/SIMULATE - SIMULATE FIXED/VARIABLE - FIXED SENSOR SELECT - OFF LOW LEVEL WARNING - DRY MODE - OFF POWER - OFF</p> <p>(11) Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>(12) Set test set POWER switch to ON.</p> <p>(13) On test set, verify LOW LEVEL WARNING lights. Depress LAMP TEST switch. If lights do not come on, replace test set.</p> <p>(14) Is FUEL LO caution displayed on caution light indicator panel and left Digital Display Indicator IP-1317()?</p>		
<p>d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) from:</p> <p>5P-R030 pin 10 to 52P-E059 pin 112 5P-R030 pin 8 to 52P-E059 pin 109</p> <p>Do step j</p>	d	e
<p>e. On test set, set MEASURE/SIMULATE switch to MEASURE. Is DRY light on?</p>	f	g
<p>f. Replace no. 2 fuel tank fuel quantity transmitter (A1-F18AC-460-300, WP165 00) and do step j</p>	-	-
<p>g. Do substeps below:</p> <p>(1) Set test set POWER switch to OFF.</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect test cable from 5J-R030 (door 26).</p> <p>(4) Disconnect connector 5P-R031 (door 31). Connect P2 on test cable W2 to 5J-R031.</p> <p>(5) Set test set MEASURE/SIMULATE switch to SIMULATE.</p>		

**Table 1. FUEL LO Not On When Fuel Amount Less Than 800 \pm 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)**

Procedure	No	Yes
(6) Set test set LOW LEVEL WARNING switch to DRY.		
(7) Turn on external electrical power (A1-F18AC-LMM-000).		
(8) Set test set POWER switch to ON.		
(9) Did FUEL LO display on caution light indicator panel and left Digital Display Indicator IP-1317(?)?	h	i
h. Isolate defective aircraft wiring (A1-F18AC()-WDM-000) from: 5P-R031 pin 10 to 52P-E059 pin 111 5P-R031 pin 8 to 52P-E059 pin 110 Do step j	-	-
i. Replace no. 3 fuel tank fuel quantity transmitter (A1-F18AC-460-300, WP166 00) and do step j	-	-
j. If opened, disconnected, or removed during this procedure, make sure the items listed below are connected, installed, or closed: (1) Connectors 5P-R030 and 5P-R031 (2) Doors 26 and 31 (A1-F18AC-LMM-010)	-	-

**Table 2. FUEL LO On When Fuel Amount Above 800 \pm 100 LB
In No. 2 or No. 3 Fuel Tank**

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
74D510003-1003	Fuel - Liquid Oxygen
(74D510003-1001)	Gages A/E24T-159
	Test Set
Materials Required	
None	

Table 2. FUEL LO On When Fuel Amount Above 800 ± 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)

<p>NOTE</p> <p>Fuel Low Level Warning System Schematic may be used while doing this test (A1-F18AC-460-500, WP013 00).</p> <p>For component location, refer to figure 1, WP024 02.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Fuel Low Level Sensing Control Unit Assembly Tank No. 2 Fuel Quantity Transmitter Tank No. 3 Fuel Quantity Transmitter</p>		
Procedure	No	Yes
<p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. On 161353 THRU 161987 BEFORE F/A-18 AFC 48, do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C057E from no. 7 circuit breaker/relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C057E, pin 98?	c	e
b. On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		

**Table 2. FUEL LO On When Fuel Amount Above 800 ± 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)**

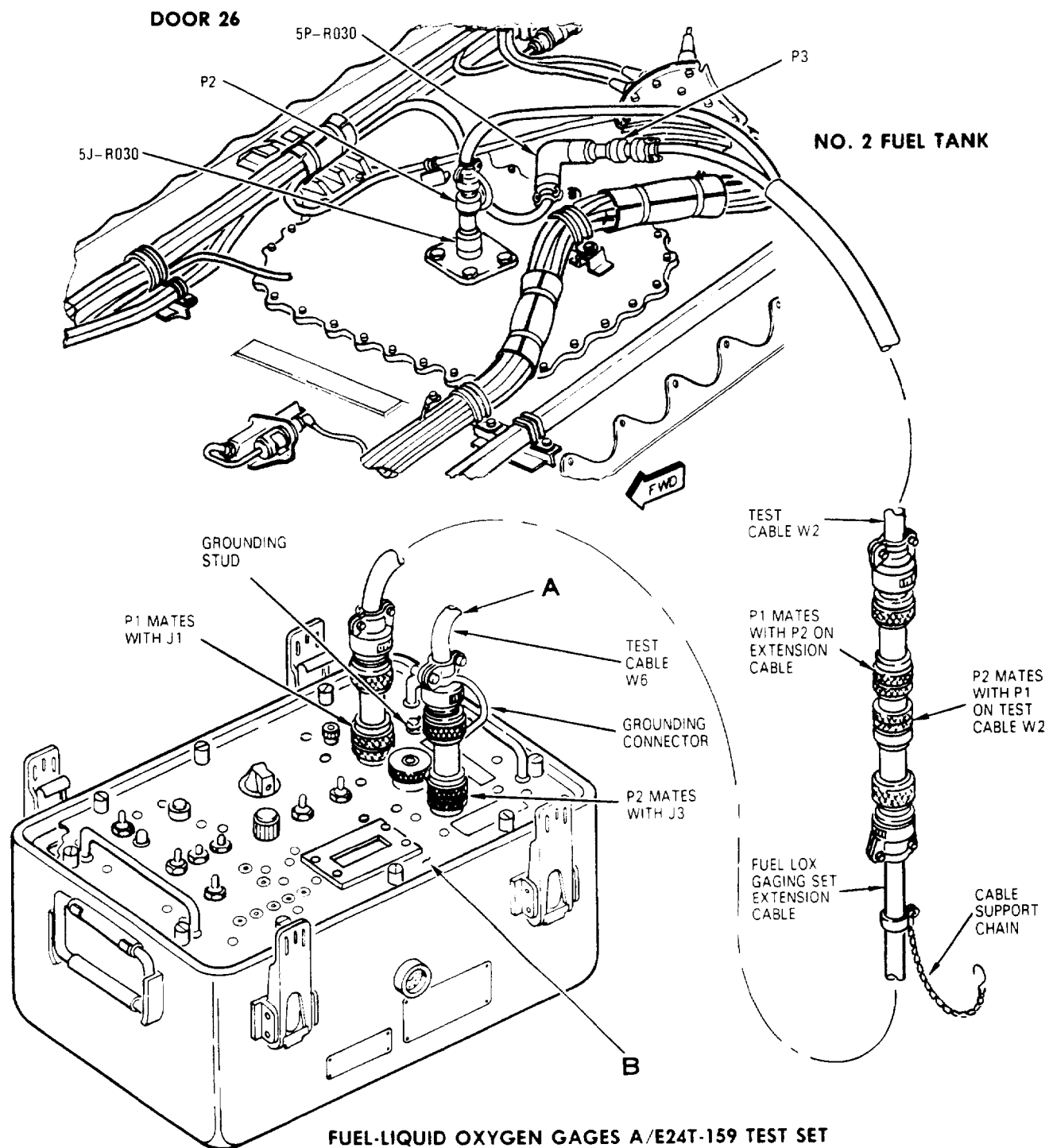
Procedure	No	Yes
(2) Open door 10L (A1-F18AC-LMM-010).		
(3) Disconnect 52P-C161 from no. 9 relay panel assembly.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Does 28vdc exist at 52P-C161, pin 29?	d	e
c. Do applicable substep below:		
(1) On 161353 THRU 161761 BEFORE F/A-18 AFC 53 and 48, isolate between 5K-C147 fuel low level time delay relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step j	-	-
(2) On 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48, isolate between 5K-C147 fuel low level time delay relay, 5K-C153 fuel low level relay no. 1 and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step j	-	-
d. Isolate between 5K-C147 fuel low level time delay relay, 5K-C163 fuel low level relay no. 1 and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step j	-	-
e. Do substeps below:		
(1) Turn on external electrical power (A1-F18AC-LMM-000).		
(2) Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).		
(3) If required, refuel aircraft (A1-F18AC-PCM-000) until tank 2 and 3 fuel amount is 1000 lb each (both tanks above fuel low level warnings).		
(4) Remove doors 26 and 31 (A1-F18AC-LMM-010).		
(5) Turn off external electrical power (A1-F18AC-LMM-000).		
(6) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1, detail A).		
(7) Connect P3 on test cable W6 to service ground jack in forward, nose wheelwell.		
(8) Connect P2 on test cable W6 to J3 on test set.		
(9) Connect grounding connector on test cable W6 to GND stud on test set.		
(10) Connect P1 on test cable W2 to J1 on test set.		

**Table 2. FUEL LO On When Fuel Amount Above 800 ± 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)**

Procedure	No	Yes
(11) Disconnect connector 5P-R030 (door 26). Connect P2 on test cable W2 to 5J-R030. Connect P3 to 5P-R030.		
(12) On 161353 THRU 161987 BEFORE F/A-18 AFC 48, reconnect 52P-C057E to no. 7 circuit breaker/relay panel assembly.		
(13) On 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, reconnect 52P-C161 to no. 9 relay panel assembly.		
(14) Set switches on test set (fig 1, detail B) as listed below: MEASURE/SIMULATE - SIMULATE FIXED/VARIABLE - FIXED SENSOR SELECT - OFF LOW LEVEL WARNING - WET MODE - OFF POWER - OFF		
(15) Turn on external electrical power (A1-F18AC-LMM-000).		
(16) Set test set POWER switch to ON.		
(17) On test set, verify LOW LEVEL WARNING lights. Depress LAMP TEST switch. If lights do not come on, replace test set.		
(18) Is FUEL LO caution displayed on caution light indicator panel and left Digital Display Indicator IP-1317()?	h	g
f. Isolate between defective fuel low level control unit (A1-F18AC-460-300, WP171 00) and defective aircraft wiring (A1-F18A()-WDM-000). Do step j	-	-
g. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect test cable from 5J-R030 (door 26).		
(4) Disconnect connector 5P-R031 (door 31). Connect P2 on test cable W2 to 5J-R031.		
(5) Set test set MEASURE/SIMULATE switch to SIMULATE.		
(6) Set test set LOW LEVEL WARNING switch to WET.		
(7) Turn on external electrical power (A1-F18AC-LMM-000).		
(8) Set test set POWER switch to ON.		

**Table 2. FUEL LO On When Fuel Amount Above 800 \pm 100 LB
In No. 2 or No. 3 Fuel Tank (Continued)**

Procedure	No	Yes
(9) Is FUEL LO displayed on caution light indicator panel and left Digital Display Indicator IP-1317()?	i	f
h. Replace no. 2 fuel tank fuel quantity transmitter (A1-F18AC-460-300, WP165 00) and do step j	-	-
i. Replace no. 3 fuel tank fuel quantity transmitter (A1-F18AC-460-300, WP166 00) and do step j	-	-
j. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-R030, 5P-R031, 52P-C057E, 52P-C161.		
(2) Doors 10L, 26 and 31 (A1-F18AC-LMM-010)	-	-



26010101

Figure 1. Fuel Low Level Warning Troubleshooting Component Locator (Sheet 1 of 4)

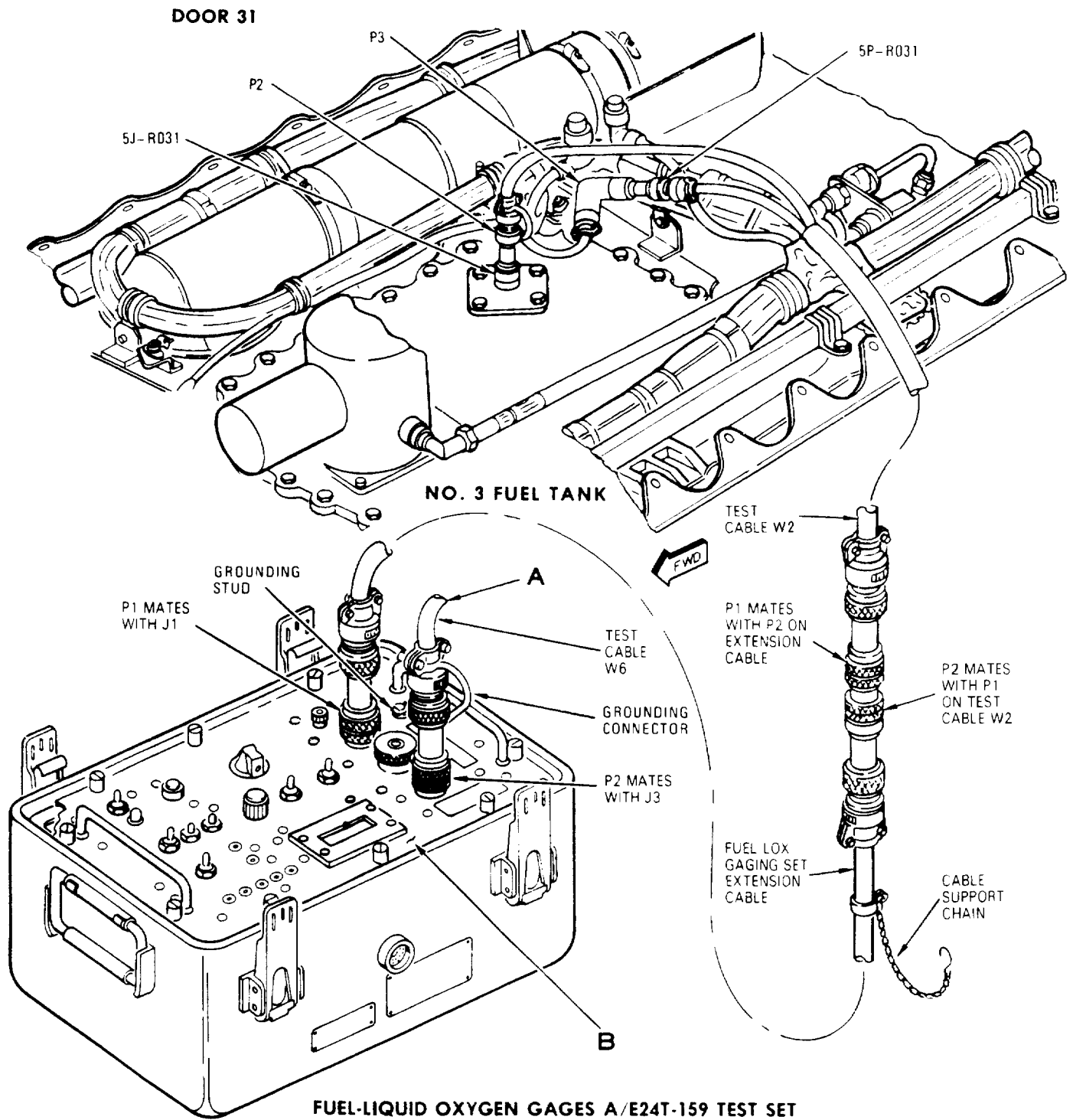
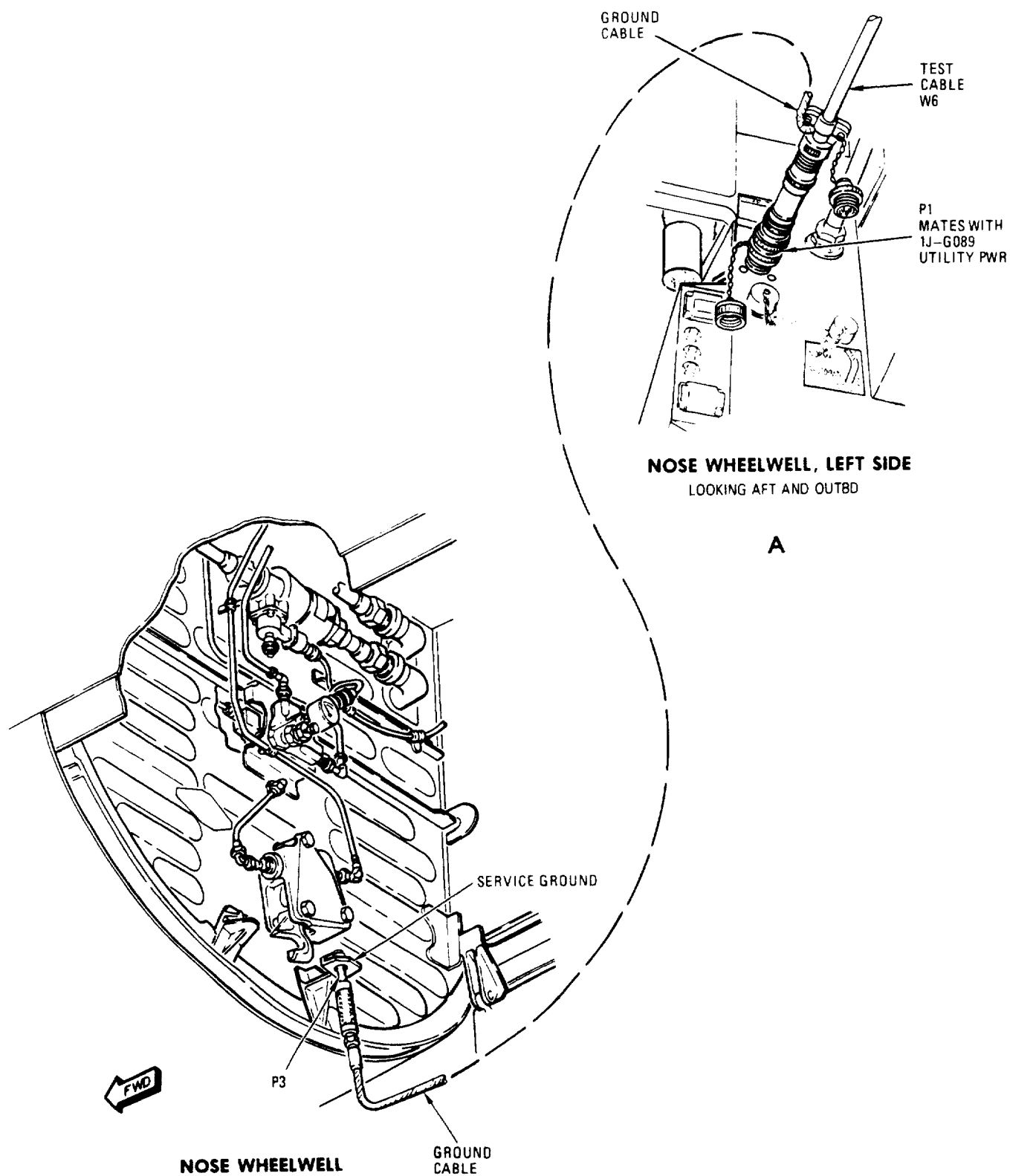
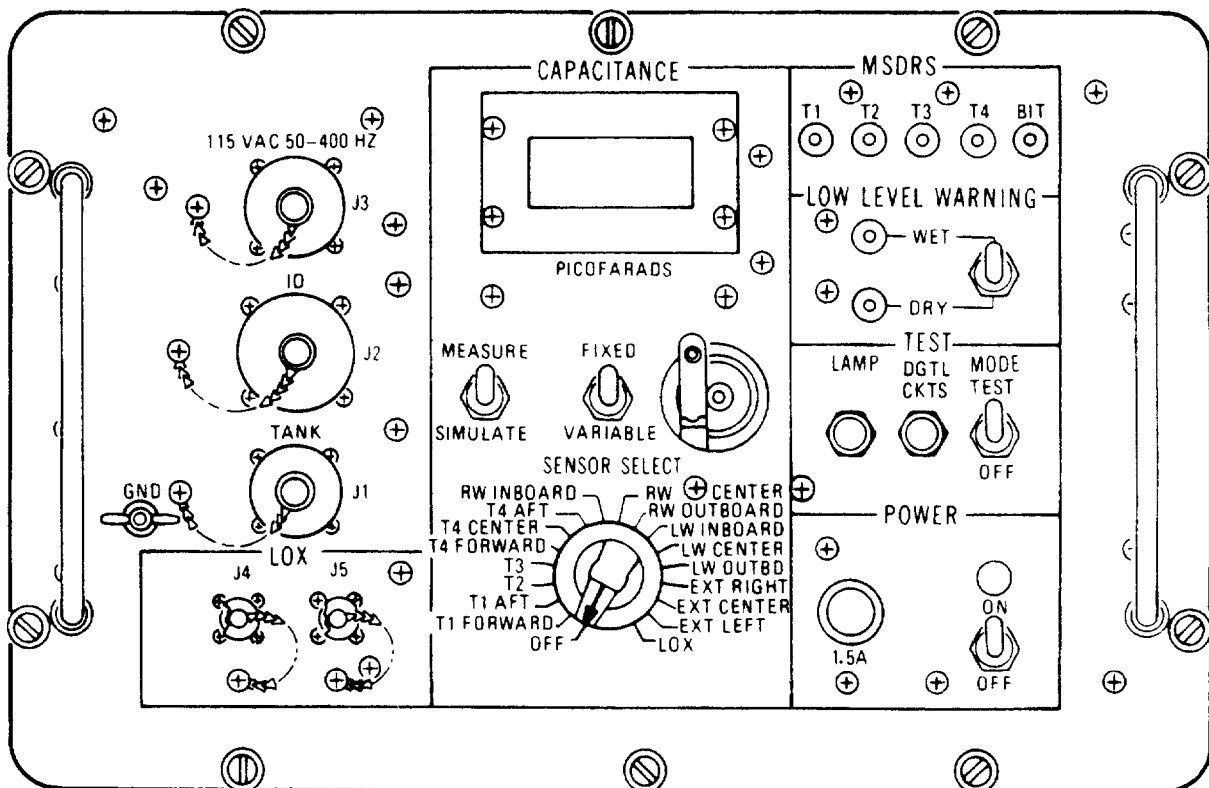


Figure 1. Fuel Low Level Warning Troubleshooting Component Locator (Sheet 2)



26010103

Figure 1. Fuel Low Level Warning Troubleshooting Component Locator (Sheet 3)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

Figure 1. Fuel Low Level Warning Troubleshooting Component Locator (Sheet 4)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING PART III
FUEL LOW LEVEL WARNING SYSTEM

Reference Material

Fuel System Schematics A1-F18AC-460-500
Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48, Table 1	2
FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, Table 2	8

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	—	Alternating Current Bus Isolation (ECP MDA-F/A-18-00121)	1 Dec 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A 18 00055/C1)	1 Jul 86	—

Table 1. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

The Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 00) may be used while doing this procedure.

For component location, refer to figure 1, WP024 02.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Fuel Low Level Sensing Control Unit
FUEL QTY Indicator
No. 3 Relay Panel Assembly
No. 7 Circuit Breaker/Relay Panel Assembly
No. 8 Circuit Breaker/Relay Panel Assembly
5CBC050 FUEL LOW LVL WRN Circuit Breaker
5CBC054 LIQ LVL CONT Circuit Breaker
5K-C147 Fuel Low Level Time Delay Relay
5K-E055 Fuel Low Level Bit Relay No. 1
5K-E164 Fuel Low Level Bit Relay No. 2
5K-E165 Fuel Low Level Bit Relay No. 3

Table 1. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
<p style="text-align: center;">CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="margin-left: 100px;">52P-C057E 52P-C159F 52P-C159G</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 8 circuit breaker/relay panel assembly, is LIQ LVL CONT or FUEL LOW LVL WRN circuit breaker open?	c	b
b. Do substeps below:		
(1) Close circuit breaker.		
(2) Turn on external electrical power (A1-F18AC-LMM-000).		
(3) If circuit breaker continues to open, isolate short to ground using fuel quantity low level warning system schematic (A1-F18AC-460-500, WP013 00), and do step z	-	-

Table 1. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C057E from the no. 7 circuit breaker/relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52P-C057E pin 97?	d	e
d. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159G from the no. 8 circuit breaker/relay panel assembly.		
(3) Does continuity exist from 52P-C159G pin 46 to 52P-C057E pin 97?	f	g
e. Do substeps below:		
(1) Set FUEL QTY selector knob to BIT and hold.		
(2) Does 28vdc exist at 52P-C057E pin 98?	h	i
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step z	-	-
g. Isolate between the 5CBC050 FUEL LOW LVL WRN and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step z	-	-
h. Do substeps below:		
(1) On 161353 THRU 161944, remove door 46R (A1-F18AC-LMM-010) and protective cap from fuel ground test receptacle (5J-R135).		
(2) On 161945 AND UP, remove protective cap from fuel ground test receptacle (5J-R135) located in right MLG wheelwell.		
(3) Set FUEL QTY selector knob to BIT and hold. Does 28vdc exist at 5J-R135, pin 53?	j	k
i. Isolate between 5K-C147 fuel low level time delay relay, 5K-C163 fuel low level relay no. 1 and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step z	-	-

Table 1. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
j. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159F from the no. 8 circuit breaker/relay panel assembly (door 10L).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Set FUEL QTY selector knob to BIT and hold. Does 28vdc exist at 52P-C159F pin 5?	l	m
k. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-E059 from the no. 3 relay panel assembly.		
(4) Disconnect 52P-C057F from no. 7 circuit breaker/relay panel assembly.		
(5) Does continuity exist from:		
52P-E059 pin 107 to 52P-C057E pin 98		
52P-E059 pin 84 to 5J-R135 pin 53		
52P-E059 pin 19 to 52P-C057F pin 73?	f	n
l. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159G from the no. 8 circuit breaker/relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 115vac exist at 52J-C159G pin 43?	o	p
m. Does continuity exist from 52P-C159F pin 19 to 5J-R135 pin 53?	f	q
n. Isolate between 5K-E055 fuel low level bit relay no. 1 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP036 00), and do step z	-	-

Table 1. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
o. Isolate between 5CBC054 LIQ LVL CONT circuit breaker and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step z	-	-
p. Do substeps below:		
(1) On F/A-18A, remove door 18. On F/A-18B, open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-E053 from the fuel low level sensing control unit.		
(4) Does continuity exist from:		
52P-C159G pin 43 to 5P-E053 pin 6		
52P-C159G pin 46 to 5P-E053 pin 10?	f	r
q. Isolate between 52TBC159 terminal board and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step z	-	-
r. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Set the FUEL QTY selector knob to BIT and hold. Does approximately 51 ohms resistance exist between:		
5P-E053 pin 1 and 5P-E053 pin 2		
5P-E053 pin 3 and 5P-E053 pin 4?	s	t
s. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-E059 from the no. 3 relay panel assembly.		
(4) Does continuity exist from:		
5P-E053 pin 1 to 52P-E059 pin 111		
5P-E053 pin 2 to 52P-E059 pin 110		
5P-E053 pin 3 to 52P-E059 pin 112		
5P-E053 pin 4 to 52P-E059 pin 109?	f	u

**Table 1. FUEL LO Caution Not Displayed On Left Digital Display Indicator
IP-1317() And Caution Light Indicator Panel When Selecting BIT,
161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18
AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)**

Procedure	No	Yes
t. Does continuity exist from: 5P-E053 pin 5 to ground 5P-E053 pin 8 to ground 5P-E053 pin 9 to 52P-C159F pin 5?	f	v
u. Do substeps below: (1) Ground pin 15 on 52P-E059. (2) Turn on electrical power (A1-F18AC-LMM-000). (3) Set the FUEL QTY selector knob to BIT and hold. Does approximately 41 ohms resistance exist at 52P-E069 pin 108?	w	x
v. Replace the fuel low level sensing control unit (A1-F18AC-460-300, WP171 00) and do step z	-	-
w. Do substeps below: (1) Remove the FUEL QTY indicator (A1-F18AC-460-300, WP160 00). (2) Does continuity exist from: 5P-H013 pin 24 to 52P-E059 pin 108 5P-H013 pin 25 to 52P-E059 pin 15?	f	y
x. Isolate between 5K-E055 fuel low level bit relay no. 1, 5K-E164 fuel low level bit relay no. 2, 5K-E165 fuel low level bit relay no. 3 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step z	-	-
y. Replace the FUEL QTY indicator (A1-F18AC-460-300, WP160 00) and do step z	-	-
z. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed: (1) Connectors 52P-C057E, 52P-C159F, 52P-C159G, 52P-E059, 5P-E053 and 52P-C057F. (2) FUEL QTY indicator (A1-F18AC-460-300, WP160 00). (3) Fuel ground test receptacle protective cap. (4) Doors 10L, 13L, 18 and 46R (A1-F18AC-LMM-010)	-	-

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48

Support Equipment Required

NOTE

Alternate item type designations or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE

The Fuel Quantity Low Level Warning System Schematic (A1-F18AC-460-500, WP013 00) may be used while doing this procedure.

For component location, refer to figure 1, WP024 02.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Fuel Low Level Sensing Control Unit
FUEL QTY Indicator
No. 3 Relay Panel Assembly
No. 8 Circuit Breaker/Relay Panel Assembly
No. 9 Relay Panel Assembly
5CBC050 FUEL LOW LVL WRN Circuit Breaker
5CBC054 LIQ LVL CONT Circuit Breaker
5K-C147 Fuel Low Level Time Delay Relay
5K-E055 Fuel Low Level Bit Relay No. 1
5K-E164 Fuel Low Level Bit Relay No. 2
5K-E165 Fuel Low Level Bit Relay No. 3

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)


Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="margin-left: 100px;">52P-C159F 52P-C159G</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
a. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) On no. 8 circuit breaker/relay panel assembly, is LIQ LVL CONT or FUEL LOW LVL WRN circuit breaker open?	c	b
b. Do substeps below:		
(1) Close circuit breaker.		
(2) Turn on external electrical power (A1-F18AC-LMM-000).		
(3) If circuit breaker continues to open, isolate short to ground using fuel quantity low level warning system schematic, 161924 AND UP (A1-F18AC-460-500, WP013 03) and do step z	-	-
c. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)

Procedure	No	Yes
(2) Disconnect 52P-C161 from the no. 9 relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52P-C161 pin 37?	d	aa
d. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159G from the no. 8 circuit breaker/relay panel assembly.		
(3) Does continuity exist from 52P-C159G pin 46 to 52P-C161 pin 37?	f	g
e. Do substeps below:		
(1) Connect 52P-E059 to no. 3 relay panel.		
(2) Turn on electrical power (A1-F18AC-LMM-000).		
(3) Set FUEL QTY selector knob to BIT and hold.		
(4) Does 28vdc exist at 52P-C161 pin 29?	h	i
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step z	-	-
g. Isolate between the 5CBC050 FUEL LOW LVL WRN and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step z	-	-
h. Do substeps below:		
(1) Remove protective cap from fuel ground test receptacle (5J-R135) located in right MLG wheelwell.		
(2) Set FUEL QTY selector knob to BIT and hold. Does 28vdc exist at 5J-R135, pin 53?	j	k
i. Isolate between 5K-C147 fuel low level time delay relay, 5K-C163 fuel low level relay no. 1 and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step z	-	-
j. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)

Procedure	No	Yes
(2) Disconnect 52P-C159F from the no. 8 circuit breaker/relay panel assembly (door 10L).		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Set FUEL QTY selector knob to BIT and hold. Does 28vdc exist at 52P-C159F pin 5?	l	m
k. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-E059 from the no. 3 relay panel assembly.		
(4) Disconnect 52P-C161 from no. 9 relay panel assembly.		
(5) Does continuity exist from:		
52P-E059 pin 107 to 52P-C161 pin 29		
52P-E059 pin 84 to 5J-R135 pin 53?	f	n
l. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 52P-C159G from the no. 8 circuit breaker/relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 115vac exist at 52J-C159G pin 43?	o	p
m. Does continuity exist from 52P-C159F pin 19 to 5J-R135 pin 53?	f	q
n. Isolate between 5K-E055 fuel low level bit relay no. 1 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP036 00), and do step z	-	-
o. Isolate between 5CBC054 LIQ LVL CONT circuit breaker and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step z	-	-
p. Do substeps below:		
(1) On F/A-18A, remove door 18.		
On F/A-18B, open door 13L (A1-F18AC-LMM-010).		

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)

Procedure	No	Yes
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-E053 from the fuel low level sensing control unit.		
(4) Does continuity exist from:		
52P-C159G pin 43 to 5P-E053 pin 6		
52P-C159G pin 46 to 5P-E053 pin 10?	f	r
q. Isolate between 52TBC159 terminal board and no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step z	-	-
r. Do substeps below:		
(1) Turn on electrical power (A1-F18AC-LMM-000).		
(2) Set the FUEL QTY selector knob to BIT and hold. Does approximately 51 ohms resistance exist between:		
5P-E053 pin 1 and 5P-E053 pin 2		
5P-E053 pin 3 and 5P-E053 pin 4?	s	t
s. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-E059 from the no. 3 relay panel assembly.		
(4) Does continuity exist from:		
5P-E053 pin 1 to 52P-E059 pin 111		
5P-E053 pin 2 to 52P-E059 pin 110		
5P-E053 pin 3 to 52P-E059 pin 112		
5P-E053 pin 4 to 52P-E059 pin 109?	f	u
t. Does continuity exist from:		
5P-E053 pin 5 to ground		
5P-E053 pin 8 to ground		
5P-E053 pin 9 to 52P-C159F pin 5?	f	v

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)

Procedure	No	Yes
u. Do substeps below:		
(1) Ground pin 15 on 52P-E059.		
(2) Turn on electrical power (A1-F18AC-LMM-000).		
(3) Set the FUEL QTY selector knob to BIT and hold. Does approximately 41 ohms resistance exist at 52P-E059 pin 108?	w	x
v. Replace the fuel low level sensing control unit (A1-F18AC-460-300, WP171 00) and do step z	-	-
w. Do substeps below:		
(1) Remove the FUEL QTY indicator (A1-F18AC-460-300, WP160 00).		
(2) Does continuity exist from:		
5P-H013 pin 24 to 52P-E059 pin 108		
5P-H013 pin 25 to 52P-E059 pin 15?	f	y
x. Isolate between 5K-E055 fuel low level bit relay no. 1, 5K-E164 fuel low level bit relay no. 2, 5K-E165 fuel low level bit relay no. 3 and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step z	-	-
y. Replace the FUEL QTY indicator (A1-F18AC-460-300, WP160 00) and do step z	-	-
z. If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:		
(1) Connectors 52P-C161, 52P-C159F, 52P-C159G, 52P-E059, 5P-E053		
(2) FUEL QTY indicator (A1-F18AC-460-300, WP160 00)		
(3) Fuel ground test receptacle protective cap.		
(4) Doors 10L, 13L, and 18 (A1-F18AC-LMM-010).		
aa. Turn off electrical power (A1-F18AC-LMM-000). Does a ground exist at 52J-C161 pin 33?	ab	ac
ab. Isolate between 5K-C147 fuel low level warning timer relay and no. 9 relay panel assembly (A1-F18AC-420-300, WP041 00) and do step z	-	-

Table 2. FUEL LO Caution Not Displayed On Left Digital Display Indicator IP-1317() And Caution Light Indicator Panel When Selecting BIT, 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)

Procedure	No	Yes
ac. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-E059 from no. 3 relay panel assembly.		
(3) Does continuity exist from 52P-E059 pin 19 to 52P-C161 pin 33?	f	e

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
CAPACITANCE MEASUREMENT AT INTERMEDIATE DEVICE
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Capacitance Measurement at Intermediate Device, Figure 1	7
Capacitance Measurement at Intermediate Device, Table 1	1
Capacitance Measurement Using JP-4, Figure 2	10

Record of Applicable Technical Directives

None

Table 1. Capacitance Measurement at Intermediate Device

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D510003-1003	Fuel - Liquid Oxygen Gages	
(74D510003-1001)	A/E24T-159 Test Set	
—	Electrical Power Source	
Materials Required		
None		

Table 1. Capacitance Measurement at Intermediate Device (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>1. PREPARATION.</p> <p style="text-align: center;">NOTE</p> <p>Due to fuel migration from higher positioned fuel tanks to lower fuel and vent tanks, test should be done within one hour after refueling. Failure to do so could result in up to 400 lb of fuel that cannot be gaged.</p> <p>a. Refuel aircraft (A1-F18AC-PCM-000).</p> <p>b. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>c. Hookup test set as listed below:</p> <p>(1) Connect P2 of test cable W6 to J3 on test box (fig 1).</p> <p>(2) Connect the ground termination wire to GND stud on test box.</p> <p>(3) Connect P3 of test cable W6 to ground jack (detail A) in nose wheelwell.</p> <p>(4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER RECEPTACLE in nose wheelwell.</p> <p>(5) On test box, (detail B), set switches as listed below:</p> <p>(a) MEASURE/SIMULATE switch to SIMULATE.</p> <p>(b) FIXED/VARIABLE switch to FIXED.</p> <p>(c) SENSOR SELECT switch to OFF.</p> <p>(d) LOW LEVEL WARNING switch to WET.</p> <p>(e) TEST MODE switch to OFF.</p>		

Table 1. Capacitance Measurement at Intermediate Device (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
(f) POWER switch to OFF.		
(6) Turn on external electrical power (A1-F18AC-LMM-000).		
d. On test box, set POWER switch to ON.	POWER light on.	Replace test box.
2. TEST BOX BUILT IN TEST (QA).		
a. On test box, press LAMP TEST switch (fig 1).	MSDRS T1, T2, T3, T4, and BIT lights come on. LOW LEVEL WARNING WET and DRY lights come on. PICO FARADS displays 8888 (all display segments come on).	Replace test box.
b. Release LAMP TEST switch.	All lights go out.	Replace test box.
c. Set TEST MODE switch to TEST.	LOW LEVEL WARNING WET light comes on.	Replace test box.
d. Set LOW LEVEL WARNING switch to DRY.	LOW LEVEL WARNING DRY light comes on.	Replace test box.
e. Press DGTL CKTS TEST switch.	PICO FARADS display is 6000.	Replace test box.
f. Release DGTL CKTS TEST switch.		
g. Set SENSOR SELECT switch to T1 FORWARD.	CAPACITANCE display is 068.0 \pm 2.0 PICO FARADS.	Replace test box.
h. Set SENSOR SELECT switch to T2.	CAPACITANCE display is 068.0 \pm 2.0 PICO FARADS.	Replace test box.
i. Set SENSOR SELECT switch to T3.	CAPACITANCE display is 068.0 \pm 2.0 PICO FARADS.	Replace test box.
j. Set SENSOR SELECT switch to T4 AFT.	CAPACITANCE display is 068.0 \pm 2.0 PICO FARADS.	Replace test box.
k. Set SENSOR SELECT switch to RW INBOARD.	CAPACITANCE display is 010.0 \pm 0.3 PICO FARADS.	Replace test box.

Table 1. Capacitance Measurement at Intermediate Device (Continued)

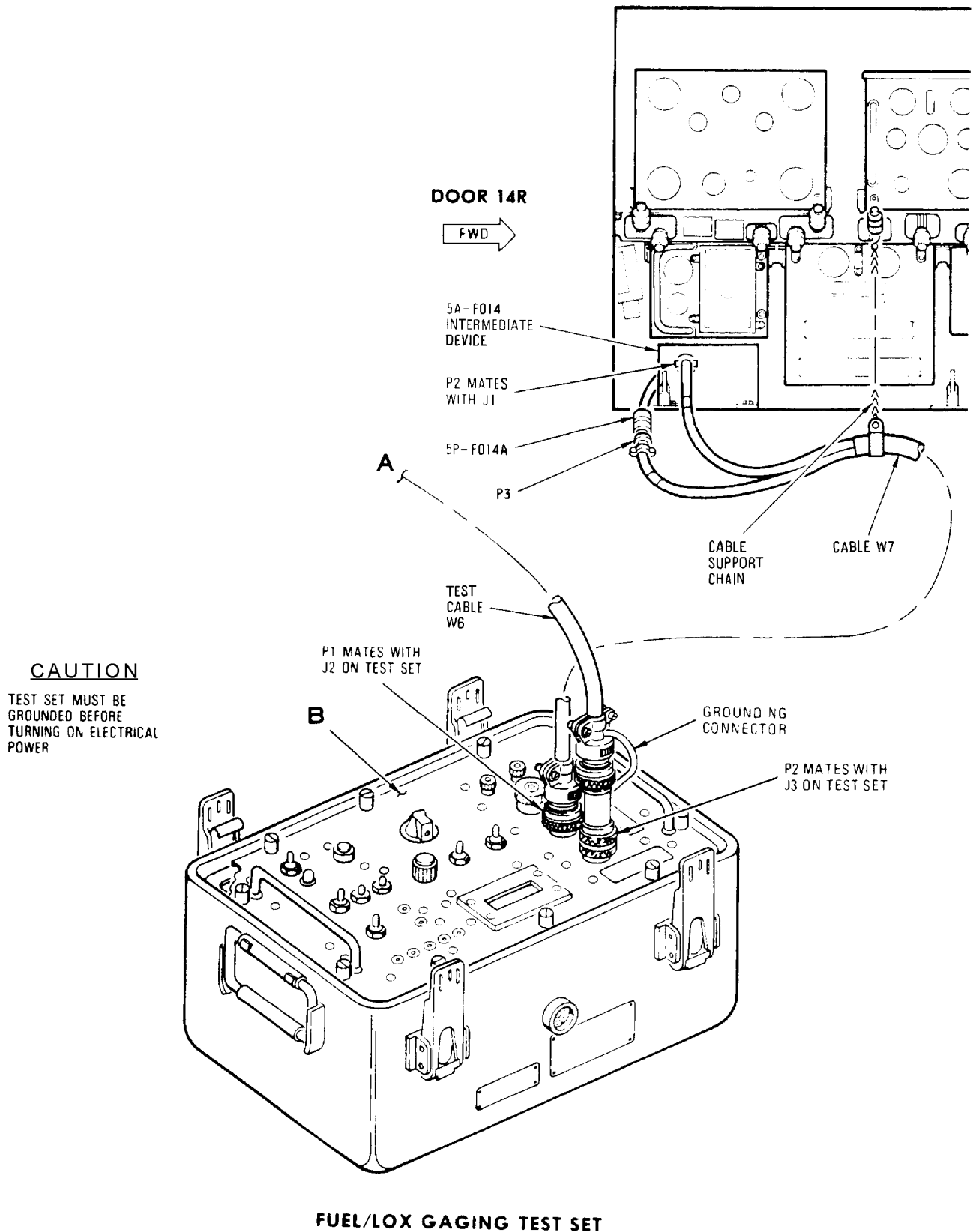
Procedure	Normal Indication	Remedy for Abnormal Indication
l. Set SENSOR SELECT switch to LW INBOARD. m. Set SENSOR SELECT switch to EXT RIGHT. n. Set SENSOR SELECT switch to EXT CENTER. o. Set SENSOR SELECT switch to EXT LEFT. p. Set TEST MODE switch to OFF. q. Set POWER switch to OFF. r. Turn off external electrical power (A1-F18AC-LMM-000). 3. CAPACITANCE MEASUREMENT AT INTERMEDIATE DEVICE (QA). a. Open door 14R (A1-F18AC-LMM-010). b. Connect P1 of test cable W7 to J2 on test box (fig 1). c. On fuel quantity gaging intermediate device (door 14R), disconnect connector 5P-F014A from J1. d. Hook cable W7 support chain on aircraft structure. e. Connect P2 of test cable W7 to J1 on intermediate device. f. Connect P3 of test 3 cable W7 to connector 5P-F014A. g. Turn on external electrical power (A1-F18AC-LMM-000). h. Set POWER switch to ON.	CAPACITANCE display is 010.0 ± 0.3 PICO FARADS. CAPACITANCE display is 020.0 ± 0.6 PICO FARADS. CAPACITANCE display is 020.0 ± 0.6 PICO FARADS. CAPACITANCE display is 020.0 ± 0.6 PICO FARADS.	Replace test box. Replace test box. Replace test box. Replace test box.

Table 1. Capacitance Measurement at Intermediate Device (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">If using JP-4, specific gravity must be determined. Refer to figure 2 for capacitance measurements using JP-4.</p>		
i. Set test box switches as listed below:		
(1) MEASURE/SIMULATE switch to MEASURE.		
(2) FIXED/VARIABLE switch to FIXED.		
(3) TEST MODE switch to OFF.		
(4) SENSOR SELECT switch to T1 FORWARD.	<p>1. On F/A-18A, CAPACITANCE display is 71.8 ± 4.0 PICO FARADS.</p> <p>2. On F/A-18B, CAPACITANCE display is 54.2 ± 4.0 PICO FARADS.</p>	Do WP028 00.
j. Set SENSOR SELECT switch to T2.	CAPACITANCE display is 80.0 ± 2.0 PICO FARADS.	Do WP029 00.
k. Set SENSOR SELECT switch to T3.	CAPACITANCE display is 79.2 ± 2.0 PICO FARADS.	Do WP030 00.
l. Set SENSOR SELECT switch to T4 FORWARD.	CAPACITANCE display is 122.2 ± 6.0 PICO FARADS.	Do WP031 00.
m. Set SENSOR SELECT switch to RW INBOARD.	CAPACITANCE display is 12.9 ± 1.5 PICO FARADS.	Do WP033 00.
n. Set SENSOR SELECT switch to LW INBOARD.	CAPACITANCE display is 12.9 ± 1.5 PICO FARADS.	Do WP032 00.
o. Set SENSOR SELECT switch to EXT RIGHT.	<p>1. On elliptical fuel tank, CAPACITANCE display is 42.9 ± 2.0 PICO FARADS.</p> <p>2. On cylindrical external fuel tank, CAPACITANCE display is 45.0 ± 2.0 PICO FARADS.</p>	<p>1. Do WP034 00.</p> <p>2. Do WP034 00.</p>

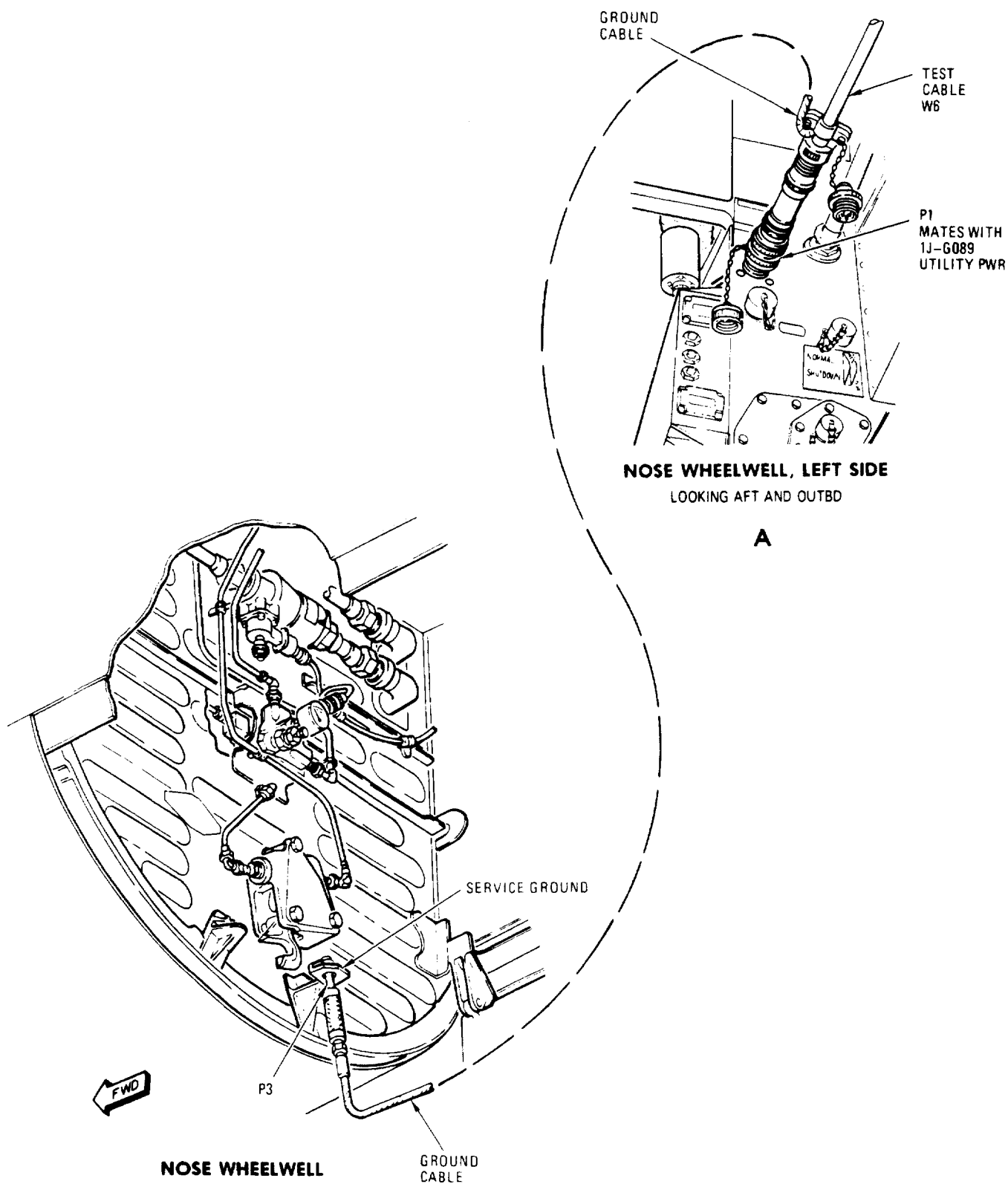
Table 1. Capacitance Measurement at Intermediate Device (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>p. Set SENSOR SELECT switch to EXT CENTER.</p> <p>q. Set SENSOR SELECT switch to EXT LEFT.</p> <p>4. FINAL.</p> <p>a. Set SENSOR SELECT switch to OFF.</p> <p>b. Set test set POWER switch to OFF.</p> <p>c. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>d. Disconnect test cable.</p> <p>e. Connect connector 5P-F014A to J1 on intermediate device (door 14R).</p> <p>f. Close door 14R (A1-F18AC-LMM-010).</p>	<p>1. On elliptical external fuel tank, CAPACITANCE display is 42.9 \pm 2.0 PICO FARADS.</p> <p>2. On cylindrical external fuel tank, CAPACITANCE display is 45.0 \pm 2.0 PICO FARADS.</p> <p>1. On elliptical external fuel tank, CAPACITANCE display is 42.9 \pm 2.0 PICO FARADS.</p> <p>2. On cylindrical external fuel tank, CAPACITANCE display is 45.0 \pm 2.0 PICO FARADS.</p>	<p>1. Do WP034 00.</p> <p>2. Do WP034 00.</p> <p>1. Do WP034 00.</p> <p>2. Do WP034 00.</p>



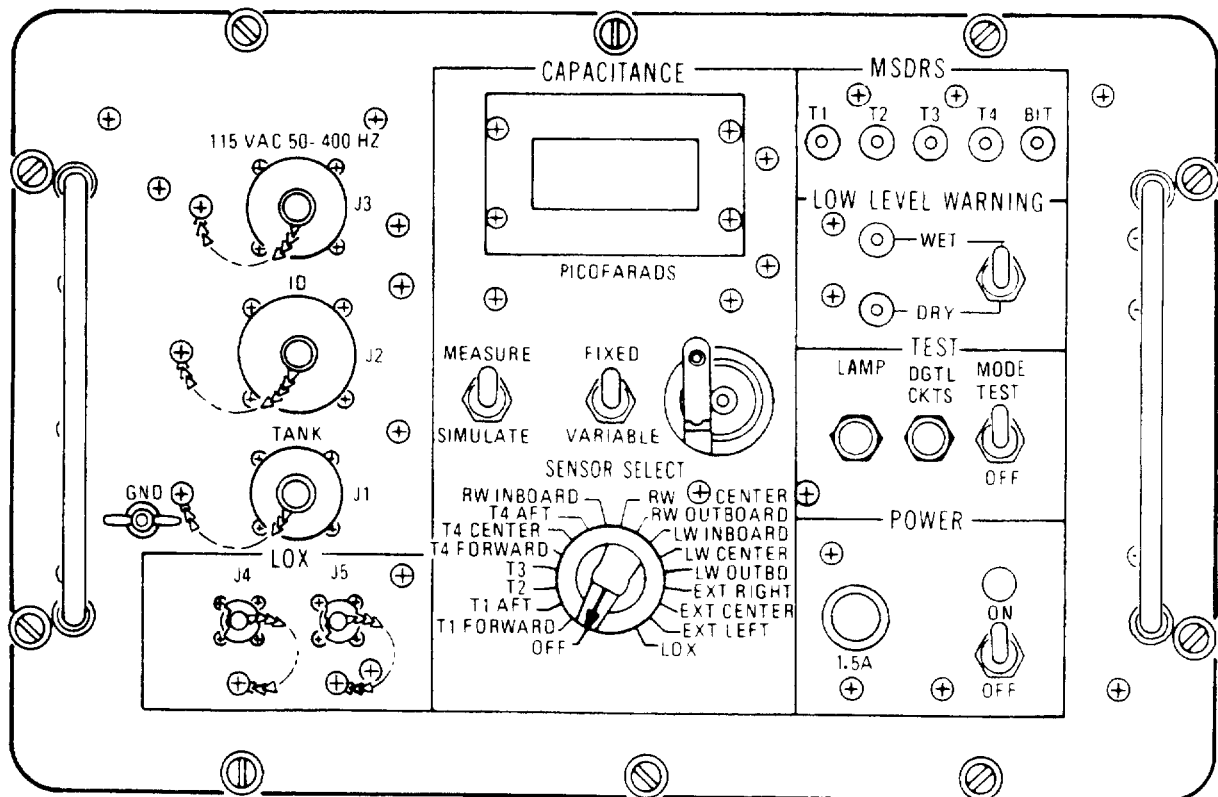
02700101

Figure 1. Capacitance Measurement at Intermediate Device (Sheet 1 of 3)



02700102

Figure 1. Capacitance Measurement at Intermediate Device (Sheet 2)



FUEL/LOX GAGING TEST SET

B

Figure 1. Capacitance Measurement at Intermediate Device (Sheet 3)

CAPACITANCE PF (VS) SG / DENSITY FOR A/C WITH FULL TANKS									
FUEL TANK	SG OF JP-4 AT 60°F	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81
	DENSITY: LB/US GAL	6.18	6.26	6.34	6.43	6.51	6.59	6.68	6.76
	TOLERANCE								
F/A-18A NO. 1	±2.0 pf	67.16	67.73	68.30	68.83	69.40	69.93	70.49	71.06
F/A-18B NO. 1	±2.0 pf	50.73	51.16	51.59	51.99	52.42	52.82	53.24	53.67
NO. 2	±2.0 pf	74.92	75.55	76.18	76.77	77.40	77.99	78.63	79.26
NO. 3	±2.0 pf	74.15	74.77	75.40	75.99	76.61	77.20	77.82	78.45
NO. 4	±2.0 pf	114.34	115.30	116.27	117.17	118.14	119.04	120.00	120.97
LEFT WING	±1.0 pf	12.09	12.19	12.30	12.39	12.49	12.59	12.69	12.79
RIGHT WING	±1.0 pf	12.09	12.19	12.30	12.39	12.49	12.59	12.69	12.79
EXTERNAL (CYLINDRICAL)	±2.0 pf	42.17	42.52	42.88	43.21	43.57	43.90	44.26	44.61
EXTERNAL (ELLIPTICAL)	±2.0 pf	40.07	40.42	40.78	41.11	41.47	41.80	42.16	42.51

Figure 2. Capacitance Measurement Using JP-4

**ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
INTERMEDIATE DEVICE OUTPUT TO SIGNAL DATA RECORDER
RO-508/ASM-612 TEST
FUEL QUANTITY GAGING SYSTEM**

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Intermediate Device Output to Signal Data Recorder, Figure 1	8
Intermediate Device Output to Signal Data Recorder RO-508/ASM-612 Test, Table 1	1
MSDRS Light Incorrect, Table 2	5

Record of Applicable Technical Directives

None

**Table 1. Intermediate Device Output To Signal Data
Recorder RO-508/ASM-612 Test**

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D510003-1003 (74D510003-1001)	Fuel - Liquid Oxygen Gages A/E24T-159 Test Set	
—	Electrical Power Source	
Materials Required		
None		

**Table 1. Intermediate Device Output To Signal Data
Recorder RO-508/ASM-612 Test (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
<p style="text-align: center;">NOTE</p> <p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00) may be used while doing this test.</p> <p>Component locations are shown in WP024 01 and WP024 02.</p>		
<p>1. PREPARATION.</p> <p>a. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>b. Hookup test set as listed below:</p> <p>(1) Connect P2 of test cable W6 to J3 on test set (fig 1).</p> <p>(2) Connect the ground termination wire to GND stud on test set.</p> <p>(3) Connect P3 of test cable W6 to ground jack in nose wheelwell.</p> <p>(4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER RECEPTACLE in nose wheelwell.</p> <p>(5) On test set, set switches as listed below:</p> <p>(a) MEASURE/SIMULATE switch to SIMULATE.</p> <p>(b) FIXED/VARIABLE switch to FIXED.</p> <p>(c) SENSOR SELECT switch to OFF.</p> <p>(d) LOW LEVEL WARNING switch to WET.</p> <p>(e) TEST MODE switch to OFF.</p> <p>(f) POWER switch to OFF.</p>		

**Table 1. Intermediate Device Output To Signal Data
Recorder RO-508/ASM-612 Test (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(6) Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>c. On test set, set POWER switch to ON.</p> <p>2. TEST SET BUILT IN TEST (QA).</p> <p>a. On test set, press LAMP TEST switch.</p> <p>b. Release LAMP TEST switch.</p> <p>c. Press DGTL CKTS TEST switch.</p> <p>d. Release DGTL CKTS TEST switch.</p> <p>e. Set POWER switch to OFF.</p> <p>f. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>3. INTERMEDIATE DEVICE OUTPUT TO SIGNAL DATA RECORDER RO-508/ASM-612 TEST (QA).</p> <p>a. Open door 14R (A1-F18AC-LMM-010).</p> <p>b. Connect P1 of test cable W7 to J2 on test set.</p> <p>c. On fuel quantity gaging intermediate device (door 14R), disconnect connector 5P-F014A from J1.</p> <p>d. Connect P2 of test cable W7 to J1 on intermediate device.</p>	<p>POWER light on.</p> <p>MSDRS T1, T2, T3, T4, and BIT lights come on. LOW LEVEL WARNING WET and DRY lights come on. PICO FARADS displays 8888 (all display segments come on).</p> <p>All lights go out.</p> <p>PICO FARADS display is 6000.</p>	<p>Replace test set.</p> <p>Replace test set.</p> <p>Replace test set.</p> <p>Replace test set.</p>

Table 1. Intermediate Device Output To Signal Data Recorder RO-508/ASM-612 Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>e. Connect P3 of test cable W7 to connector 5P-F014A.</p> <p>f. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>g. Set test set switches as listed below:</p> <p>(1) POWER switch to ON.</p> <p>(2) Set FIXED/VARIABLE switch to VARIABLE.</p> <p>(3) Set SENSOR SELECT switch to T1 FORWARD.</p> <p>(4) Adjust variable capacitor until the CAPACITANCE display is 000.0 PICO FARADS.</p>	MSDRS T1, T2, T3, T4 and BIT lights come on.	Replace test set.
h. Set SENSOR SELECT switch to T2.	T1 MSDRS light is off.	Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.
i. Set SENSOR SELECT switch to T3.	T1 MSDRS light comes on and T2 MSDRS light goes off.	Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.
j. Set SENSOR SELECT switch to T4 FORWARD.	T2 MSDRS light comes on and T3 MSDRS light goes off.	Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.
k. Set SENSOR SELECT switch to OFF.	T3 MSDRS light comes on and T4 MSDRS light goes off.	Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.
l. On cockpit FUEL QTY indicator, set and hold selector knob to BIT.	T4 MSDRS light comes on.	Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.
	BIT MSDRS light is off.	Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.

**Table 1. Intermediate Device Output To Signal Data
Recorder RO-508/ASM-612 Test (Continued)**

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>m. Release FUEL QTY indicator selector knob.</p> <p>4. FINAL.</p> <p>a. Set test set POWER switch to OFF.</p> <p>b. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>c. Disconnect test cables.</p> <p>d. Connect connector 5P-F014A to J1 on intermediate device (door 14R).</p> <p>e. Close door 14R (A1-F18AC-LMM-010).</p>	<p>BIT MSDRS light comes on.</p>	<p>Do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00). If abnormal indication still exists, do table 2.</p>

Table 2. MSDRS Light Incorrect

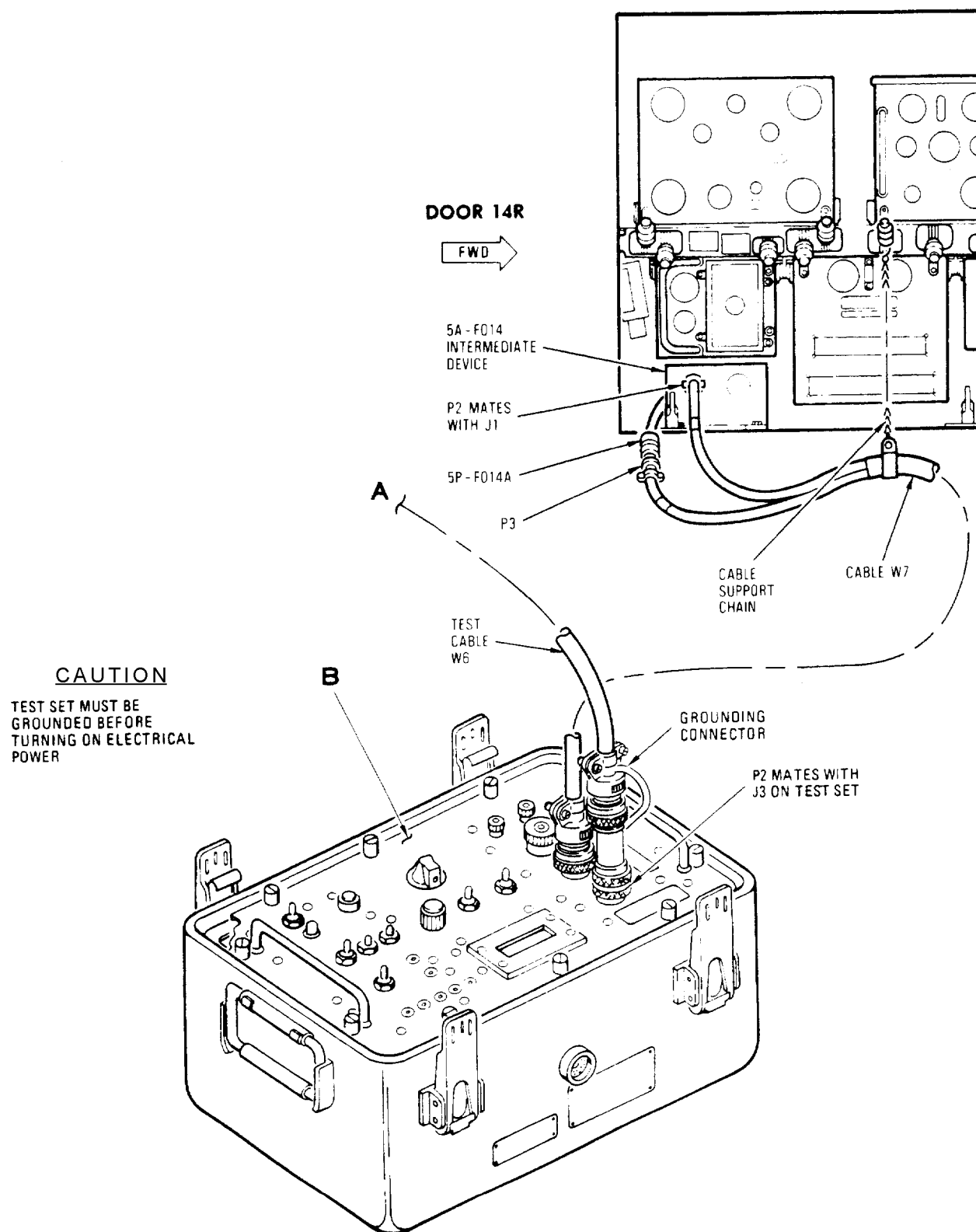
Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation 260-6XLP (AN/USM-311)	Nomenclature Multimeter
Materials Required	
None	

Table 2. MSDRS Light Incorrect (Continued)

NOTE		
<p>Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00) may be used while doing this procedure.</p> <p>For component location, refer to WP024 01 and 024 02.</p> <p>Malfunction is caused by one of the items listed below:</p> <p>Aircraft Wiring Fuel Quantity Gaging Intermediate Device</p>		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>85P-F001A</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		
a. Do substeps listed below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect P3 of cable W7 from 5P-F014A (fig 1).		
(3) Disconnect 85P-F001A from Signal Data Recorder RO-508/ASM-612.		
(4) Does continuity exist from:		
5P-F014A pin 14 to 85P-F001A pin 68		
5P-F014A pin 15 to 85P-F001A pin 60		
5P-F014A pin 16 to 85P-F001A pin 62		
5P-F014A pin 17 to 85P-F001A pin 67		
5P-F014A pin 18 to 85P-F001A pin 61?	b	c

Table 2. MSDRS Light Incorrect (Continued)

Procedure	No	Yes
b. Isolate defective aircraft wiring (A1-F18AC-WDM-000) and do step d	-	-
c. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step d	-	-
d. Connect P3 of cable W7 to 5P-F014A and 85P-F001A to Signal Data Recorder RO-508/ASM-612	-	-



27010101

Figure 1. Intermediate Device Output to Signal Data Recorder (Sheet 1 of 3)

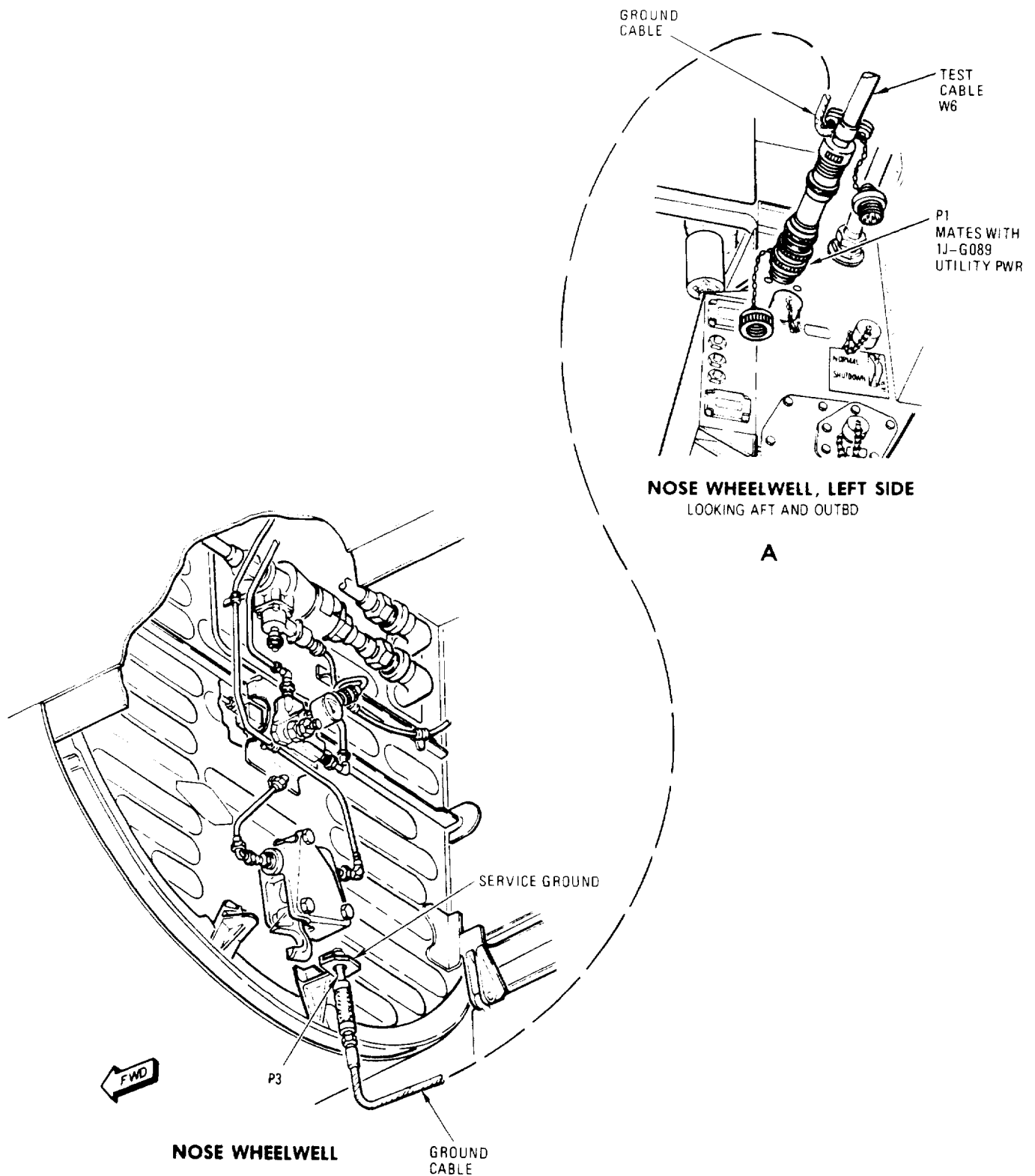
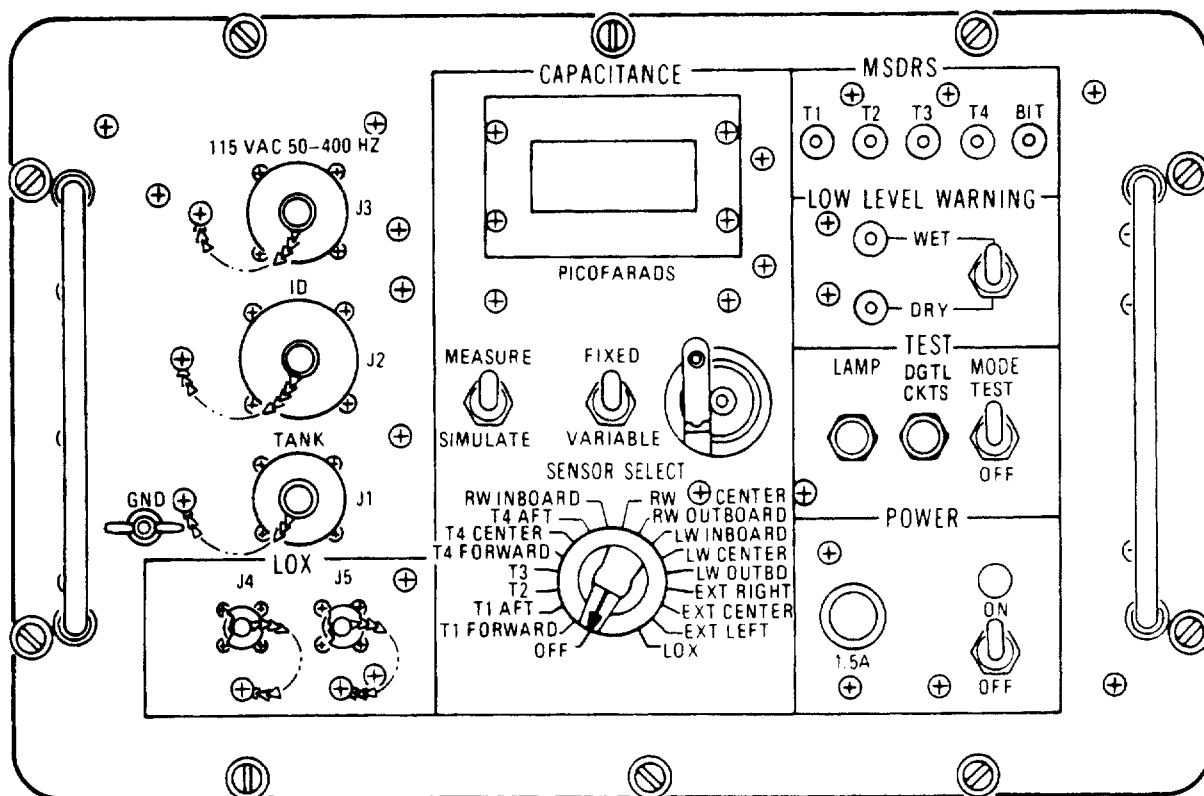


Figure 1. Intermediate Device Output to Signal Data Recorder (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
INTERMEDIATE DEVICE OUTPUT TO FUEL QTY INDICATOR TEST
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000

Alphabetical Index

Subject	Page No.
Intermediate Device Output to FUEL QTY Indicator, Figure 1	6
Intermediate Device Output to FUEL QTY Indicator Test, Table 1	1

Record of Applicable Technical Directives

None

Table 1. Intermediate Device Output To Fuel Qty Indicator Test

Procedure	Normal Indication	Remedy for Abnormal Indication
System Required Components		
All system components installed.		
Related Systems Required		
Electrical System		

Table 1. Intermediate Device Output To Fuel Qty Indicator Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
Support Equipment Required		
Part Number or Type Designation 74D510003-1003 (74D510003-1001) —		Nomenclature Fuel - Liquid Oxygen Gages A/E24T-159 Test Set Electrical Power Source
Materials Required		
None		
1. PREPARATION. a. Turn off external electrical power (A1-F18AC-LMM-000). b. Hookup test set as listed below: (1) Connect P2 of test cable W6 to J3 on test set (fig 1). (2) Connect the ground termination wire to GND stud on test set. (3) Connect P3 of test cable W6 to ground jack in nose wheelwell. (4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER RECEPTACLE in nose wheelwell. (5) On test set, set switches as listed below: (a) MEASURE/SIMULATE switch to SIMULATE. (b) FIXED/ VARIABLE switch to FIXED. (c) SENSOR SELECT switch to OFF. (d) LOW LEVEL WARNING switch to WET.		

Table 1. Intermediate Device Output To Fuel Qty Indicator Test (Continued)

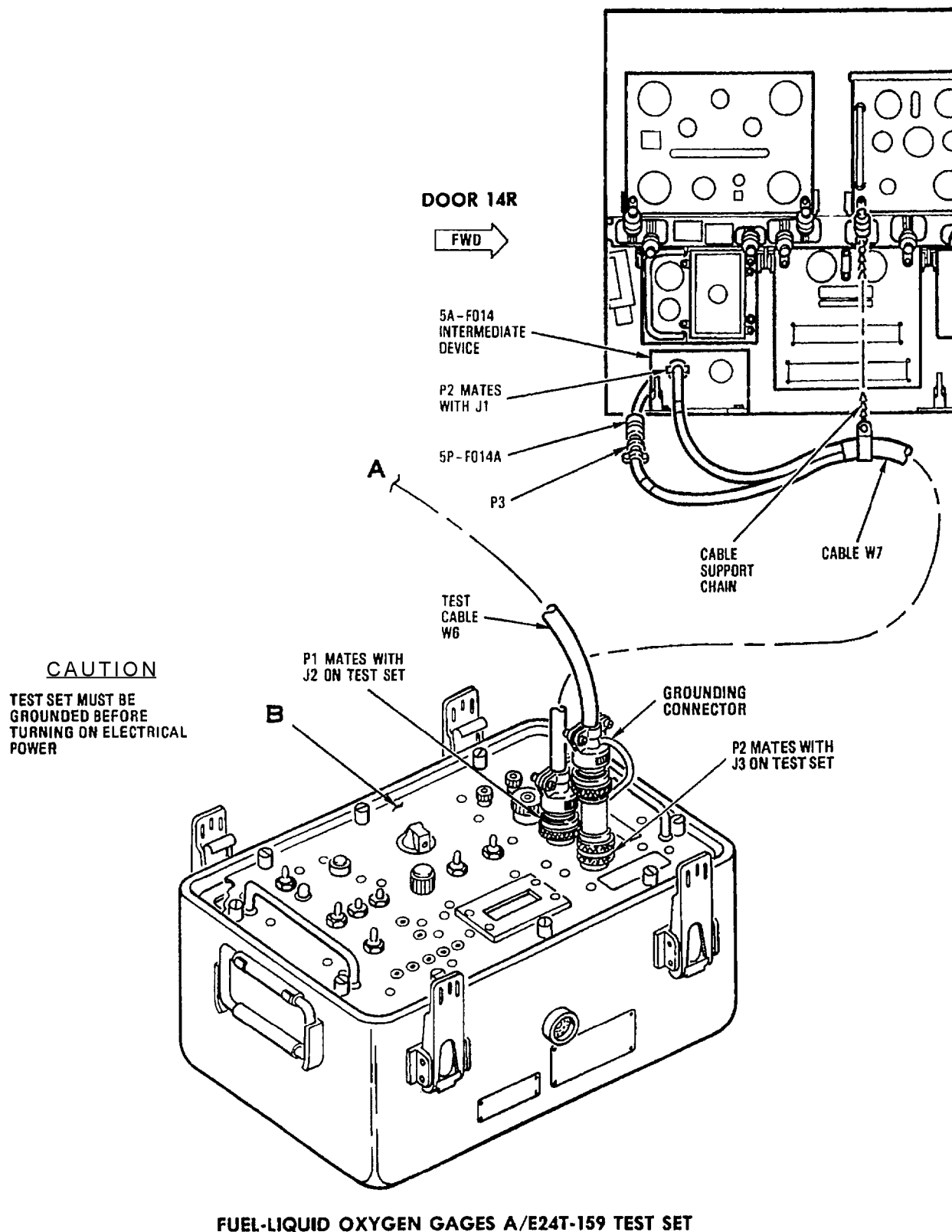
Procedure	Normal Indication	Remedy for Abnormal Indication
<p>(e) TEST MODE switch to OFF.</p> <p>(f) POWER switch to OFF.</p> <p>(6) Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>c. On test set, set POWER switch to ON.</p> <p>2. TEST SET BUILT IN TEST (QA).</p> <p>a. On test set, press LAMP TEST switch.</p> <p>b. Release LAMP TEST switch.</p> <p>c. Set POWER switch to OFF.</p> <p>d. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>3. INTERMEDIATE DEVICE OUTPUT TO FUEL QTY INDICATOR TEST (QA).</p> <p>a. Open door 14R (A1-F18AC-LMM-010).</p> <p>b. Connect P1 of test cable W7 to J2 on test set.</p> <p>c. On fuel quantity gaging intermediate device (door 14R), disconnect connector 5P-F014A from J1.</p> <p>d. Hook cable W7 support chain on aircraft structure.</p> <p>e. Connect P2 of test cable W7 to J1 on ID.</p>	<p>POWER light on.</p> <p>MSDRS T1, T2, T3, T4 and BIT lights come on. LOW LEVEL WARNING WET and DRY lights come on. PICO FARADS displays 8888 (all display segments come on).</p> <p>All lights go out.</p>	<p>Replace test set.</p> <p>Replace test set.</p> <p>Replace test set.</p>

Table 1. Intermediate Device Output To Fuel Qty Indicator Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>f. Connect P3 of test cable W7 to connector 5P-F014A.</p> <p>g. Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>h. Set test set switches as listed below:</p> <p>(1) POWER switch to ON.</p> <p>(2) Set FIXED/VARIABLE switch to FIXED.</p> <p>(3) Set SENSOR SELECT switch to T1 FORWARD.</p> <p>i. Monitor cockpit FUEL QTY indicator.</p>	<p>TOTAL LBS counter is 11500 \pm 600 lb.</p>	<p>ON F/A-18B; if both rear and forward TOTAL LBS readings are wrong, replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00). On F/A-18A; replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00). If malfunction still exists, do table 2, WP025 00).</p>
<p>j. Set cockpit FUEL QTY selector knob to FEED.</p>	<p>LEFT counter is 1550 \pm 100, RIGHT counter is 1200 \pm 100.</p>	<p>Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00). If malfunction still exists do table 2, WP025 00.</p>
<p>k. Set FUEL QTY selector knob to TRANS.</p>	<p>LEFT counter is 2800 \pm 200, RIGHT counter is 2000 \pm 100.</p>	<p>Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00). If malfunction still exists do table 2, WP025 00.</p>
<p>l. Set FUEL QTY selector knob to INTR WING.</p>	<p>LEFT counter is 500 \pm 100, RIGHT counter is 500 \pm 100.</p>	<p>Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00). If malfunction still exists do table 2, WP025 00.</p>
<p>m. Set FUEL QTY selector knob to EXT WING.</p>	<p>LEFT counter is 1100 \pm 100, RIGHT counter is 1100 \pm 100.</p>	<p>Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00). If malfunction still exists do table 2, WP025 00.</p>

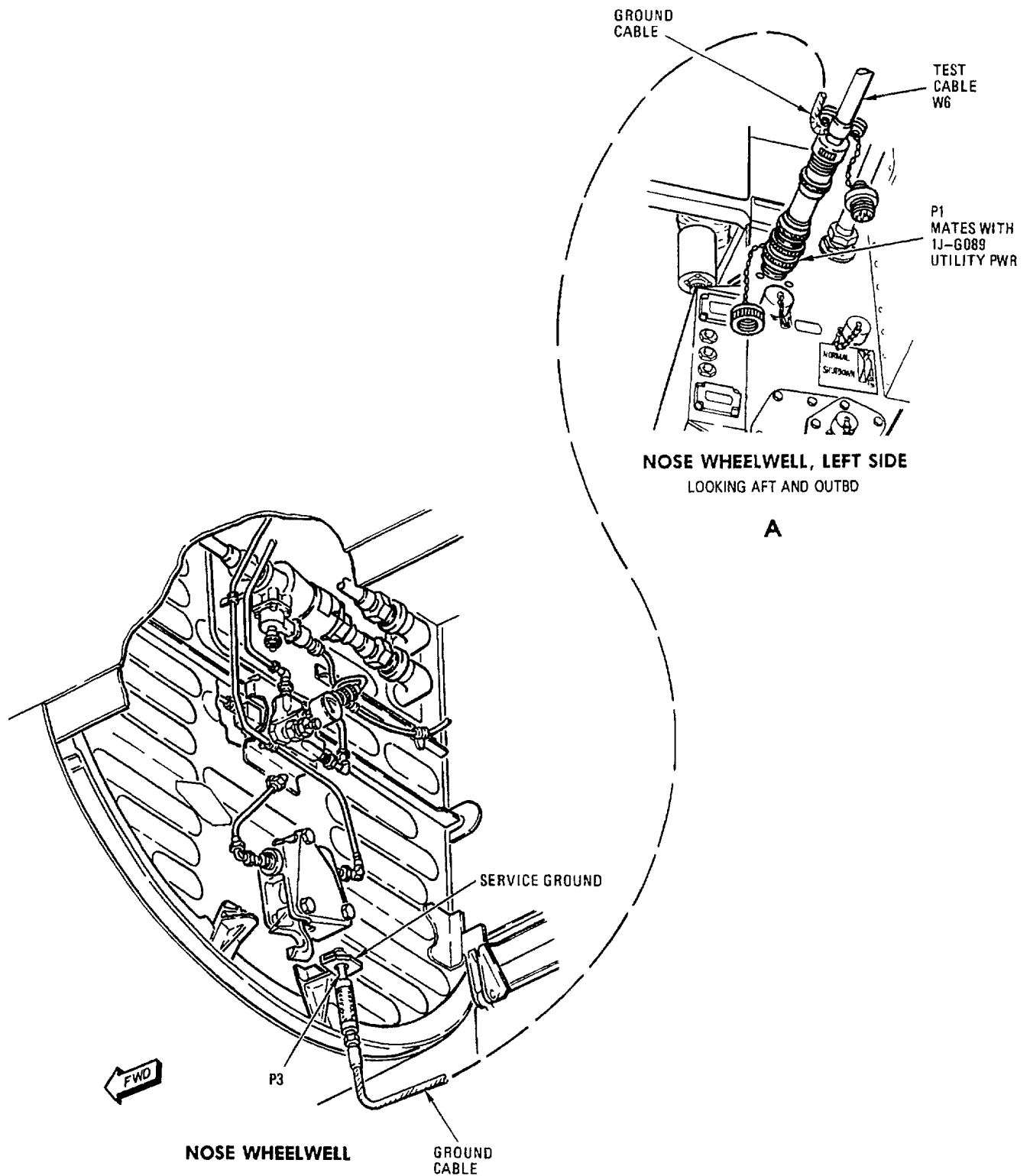
Table 1. Intermediate Device Output To Fuel Qty Indicator Test (Continued)

Procedure	Normal Indication	Remedy for Abnormal Indication
<p>n. Set FUEL QTY selector knob to EXT CTR.</p> <p>4. FINAL.</p> <p>a. Set test set POWER switch to OFF.</p> <p>b. Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>c. Disconnect test cables.</p> <p>d. Connect connector 5P-F014A to J1 on intermediate device (door 14R).</p> <p>e. Close door 14R (A1-F18AC-LMM-010).</p>	LEFT counter is 1150 ± 100 .	Replace FUEL QTY indicator (A1-F18AC-460-300, WP160 00). If malfunction still exists do table 2, WP025 00.



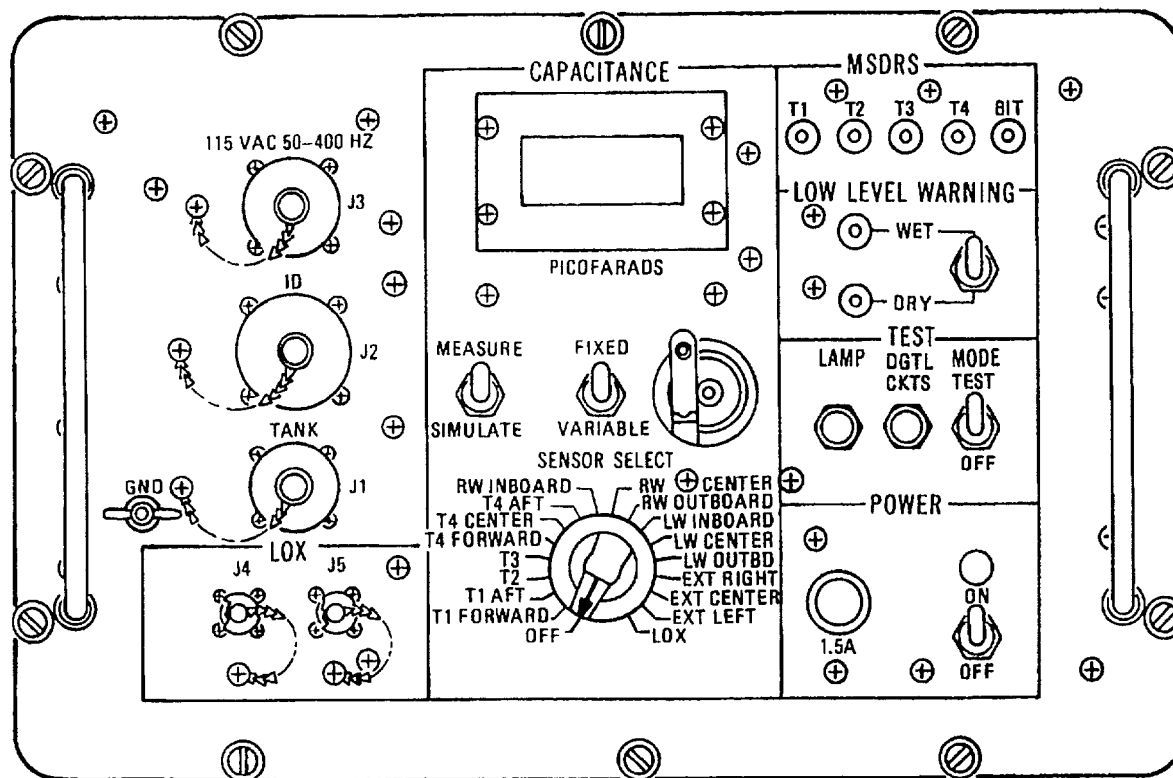
27020101

Figure 1. Intermediate Device Output to Fuel Qty Indicator (Sheet 1 of 3)



27020102

Figure 1. Intermediate Device Output to Fuel Qty Indicator (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

Figure 1. Intermediate Device Output to Fuel Qty Indicator (Sheet 3)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
NO. 1 FUEL TANK FUEL QUANTITY TRANSMITTERS CAPACITANCE TEST
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors A1-F18AC-LMM-010
Line Maintenance Procedures A1-F18AC-LMM-000
Plane Captain Manual A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No
No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test, Figure 1	7
No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test, Table 1	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
FIA-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replacement and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Oct 86	—

Table 1. No. 1 Fuel Tank Fuel Quantity Transmitters
Capacitance Test

System Required Components

All System components installed.

Related Systems Required

Electrical System

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

Part Number or Type Designation	Nomenclature
77/BN	Multimeter
74D510003-1003 (74D510003-1001)	Fuel - Liquid Oxygen Gages A/E24T-159 Test Set
74D510012-1001	Fuel/Lox Gaging Test Set Extension Cable

Materials Required

None


NOTE

Fuel Quantity Gaging System Schematic may be used while doing this test
(A1-F18AC-460-600, WP012 00).

Malfunction is caused by one of the items listed below:

- Aircraft Wiring
- No. 1 Fuel Tank Aft Fuel Quantity Transmitter
- No. 1 Fuel Tank Forward Fuel Quantity Transmitter

**Table 1. No. 1 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p align="center">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
<p>a. Do substeps below:</p> <ol style="list-style-type: none"> (1) Refuel aircraft to high level shutoff (A1-F18AC-PCM-000). (2) On F/A-18A, remove door 18 (A1-F18AC-LMM-010). (3) On F/A-18B, remove internal door CPJ (A1-F18AC-LMM-010). (4) Turn off external electrical power (A1-F18AC-LMM-000). (5) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1). (6) Connect P3 on test cable W6 to service ground jack in forward nose wheelwell. (7) Connect P2 on test cable W6 to J3 on test set. (8) Connect grounding connector on test cable W6 to GND stud on test set. (9) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set. (10) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W1. 		

**Table 1. No. 1 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

Procedure	No	Yes
<p>(11) On 161353 THRU 161519 BEFORE F/A-18 AFC 39, do substeps below:</p> <p>(a) Connect P1 on test cable W8 to P2 on test cable W1.</p> <p>(b) Disconnect 5P-E035 from forward transmitter and 5P-F029 from aft transmitter (door 18, F/A-18A) or (internal door CPJ, F/A-18B).</p> <p>(c) Connect P2 on test cable W8 to 5J-E035 (forward transmitter).</p> <p>(d) Connect P3 on test cable W8 to 5J-F029 (aft transmitter).</p> <p>(12) On 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39, do substeps below:</p> <p>(a) Disconnect 5P-F029 from aft transmitter (door 18, F/A-18A) or (internal door CPJ, F/A-18B).</p> <p>(b) Connect P2 on test cable W1 to 5P-F029.</p> <p>(13) Set switches on test set as listed below:</p> <p>MEASURE/SIMULATE - MEASURE FIXED/VARIABLE - FIXED SENSOR SELECT - T1 FORWARD LOW LEVEL WARNING - WET MODE - OFF POWER - OFF</p> <p>(14) Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>(15) Set test set POWER switch to ON.</p> <p>(16) On F/A-18A, is test set CAPACITANCE display 24.0 to 28.0 PICO FARADS?</p> <p>(17) On F/A-18B, is test set CAPACITANCE display 12.6 to 16.6 PICO FARADS?</p> <p>b. Do substeps below:</p> <p>(1) Get access to no. 1 fuel tank forward fuel quantity transmitter (A1-F18AC-460-300, WP163 00 (F/A-18A) or WP164 00 (F/A-18B)).</p> <p>(2) On 161353 THRU 161519 BEFORE F/A-18 AFC 39, does continuity exist from:</p> <p>5J-E035 pin 11 to 5A-F028 terminal T3 5J-E035 pin 12 to 5A-F028 terminal T2 5J-E035 pin 13 to 5A-F028 terminal T1?</p>	<p>b</p> <p>b</p> <p>d</p>	<p>c</p> <p>c</p> <p>e</p>

**Table 1. No. 1 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

Procedure	No	Yes
<p>(3) On 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39, does continuity exist from:</p> <p>5J-F029 pin 1 to 5A-F028 pin T1 5J-F029 pin 2 to 5A-F028 pin T2 5J-F029 pin 3 to 5A-F028 pin T3?</p>	d	e
c. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Open door 14R (A1-F18AC-LMM-010).		
(4) Disconnect 5P-F014A from J1 on intermediate device.		
<p>(5) On 161353 THRU 161519 BEFORE F/A-18 AFC 39, does continuity exist from:</p> <p>5P-E035 pin 11 to 5P-F014A pin 53 5P-E035 pin 12 to 5P-F014A pin 54 5P-E035 pin 13 to 5P-F014A pin 55?</p>	d	f
<p>(6) On 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39, does continuity exist from:</p> <p>5P-F029 pin 1 to 5P-F014A pin 55 5P-F029 pin 2 to 5P-F014A pin 54 5P-F029 pin 3 to 5P-F014A pin 53?</p>	d	f
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step i	-	-
e. Replace no. 1 fuel tank forward fuel quantity transmitter (A1-F18AC-460-300, WP163 00) and do step i	-	-
f. Do substeps listed below:		
(1) Set test set SENSOR SELECT switch to T1 AFT.		
(2) On F/A-18A, is test set CAPACITANCE display 43.8 to 47.8 PICO FARADS?	g	h
(3) On F/A-18B, is test set CAPACITANCE display 37.6 to 41.6 PICO FARADS?	g	h
g. Replace no. 1 fuel tank aft fuel quantity transmitter (A1-F18AC-460-300, WP163 00 (F/A-18A) or WP164 00 (F/A-18B)) and do step i	-	-

Table 1. No. 1 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)

Procedure	No	Yes
<p>h. Does continuity exist from:</p> <p>5P-F014A pin 53 to 5P-F029 pin 4</p> <p>5P-F014A pin 54 to 5P-F029 pin 5</p> <p>5P-F014A pin 55 to 5P-F029 pin 6?</p>	d	i
<p>i. Do substeps listed below:</p> <p>(1) Set test set POWER switch to OFF.</p> <p>(2) Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect test cables.</p> <p>(4) If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed:</p> <p>(a) Connectors 5P-E035, 5P-F029 and 5P-F014A</p> <p>(b) Doors 14R, 18, internal door CPJ and UTILITY POWER receptacle cover</p>	-	-

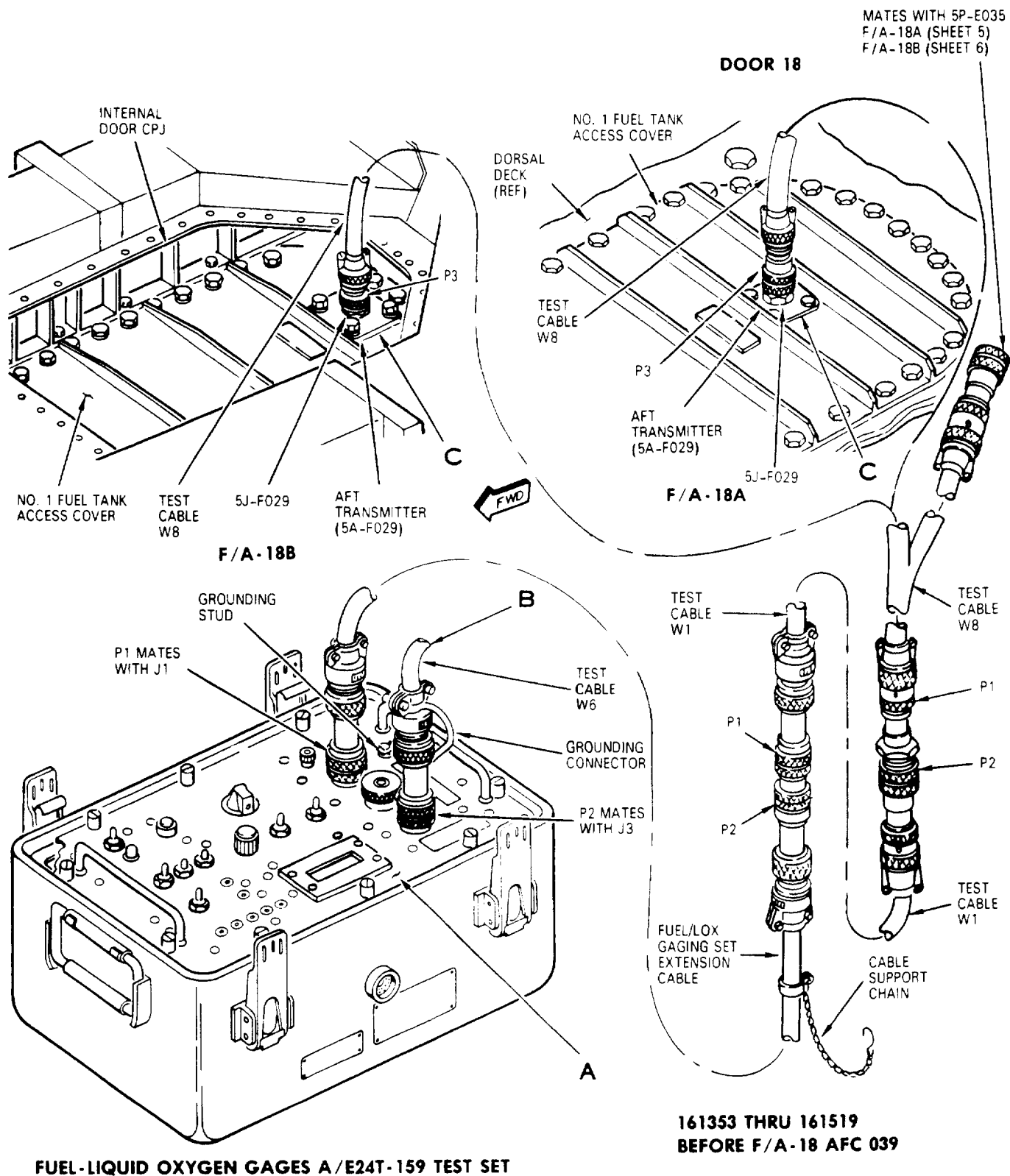
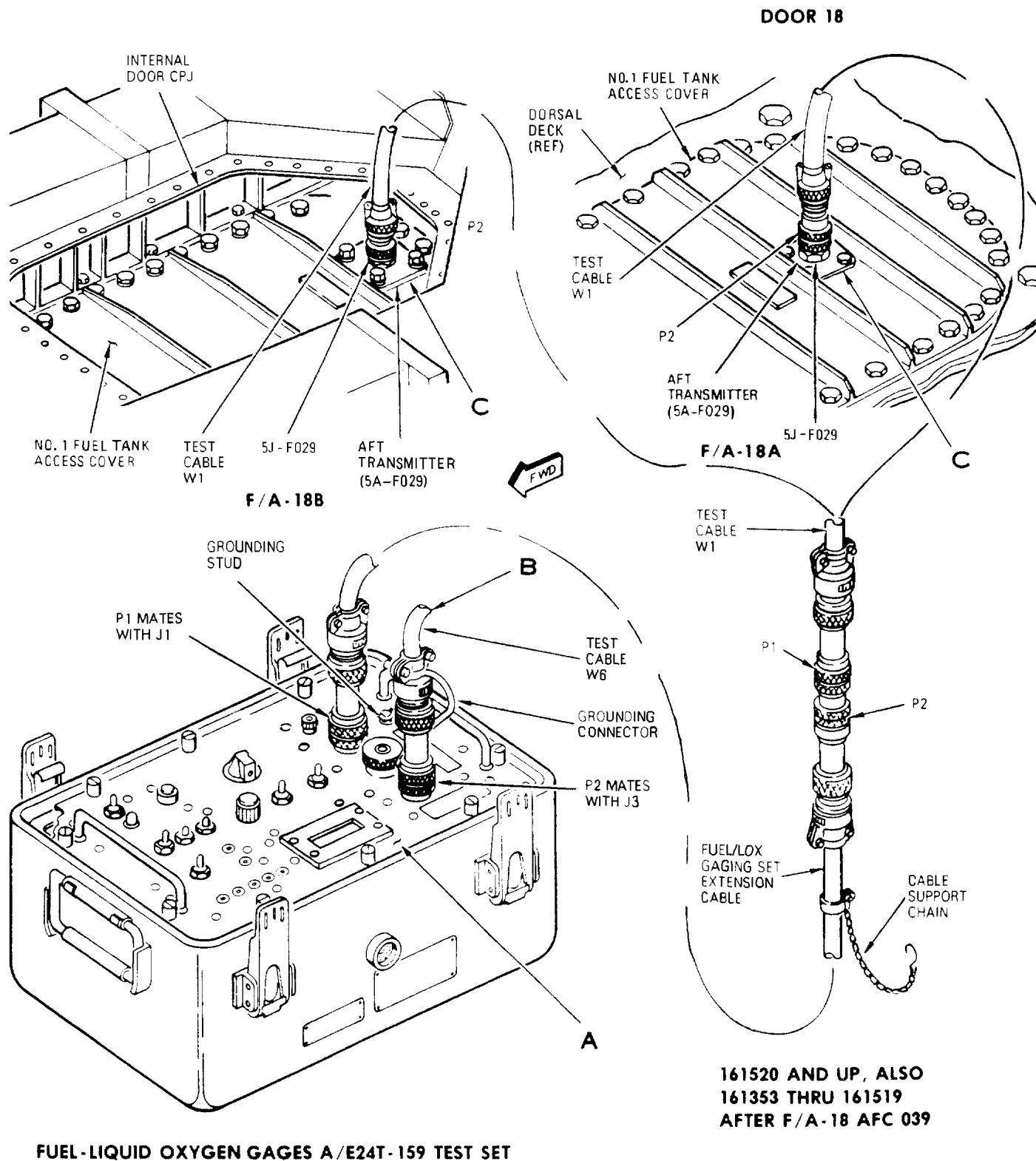
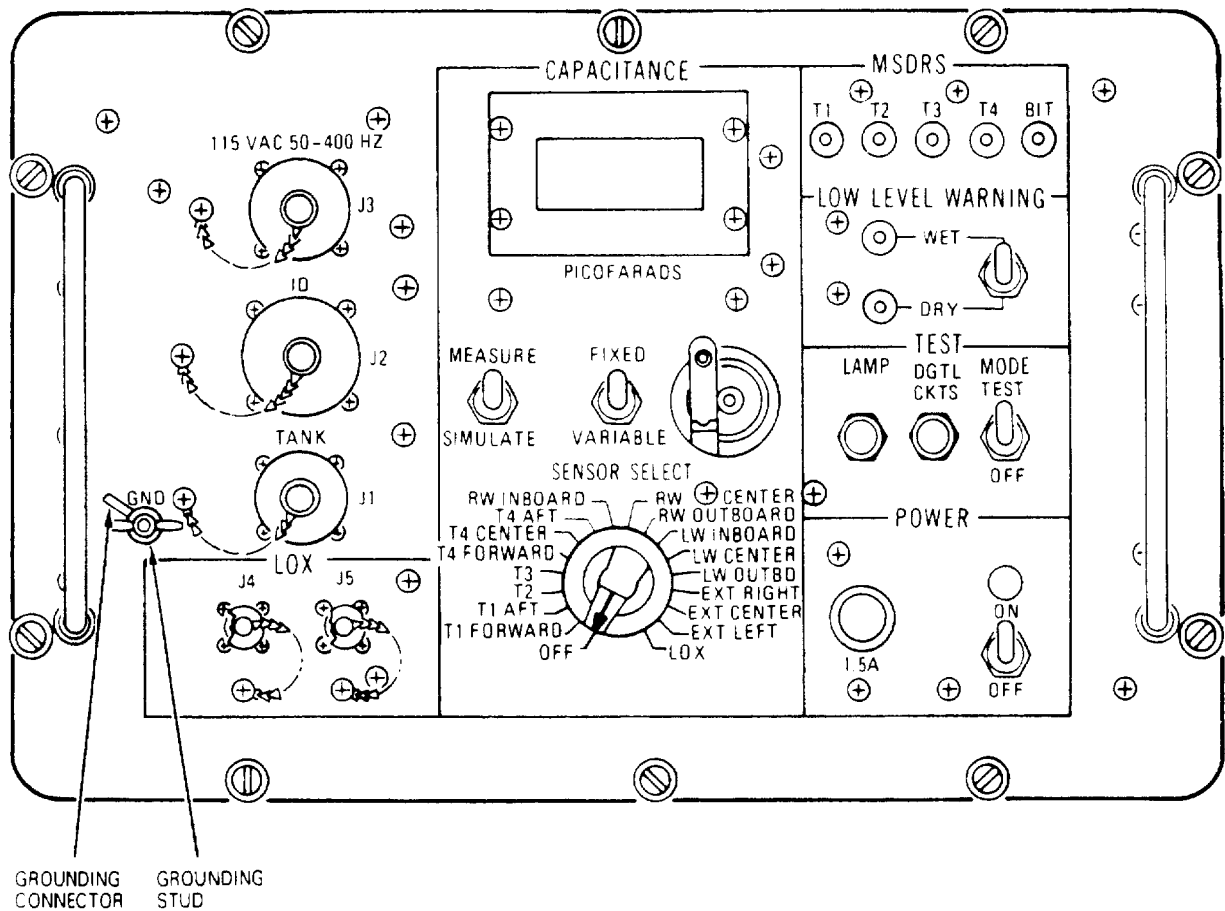


Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 1 of 7)



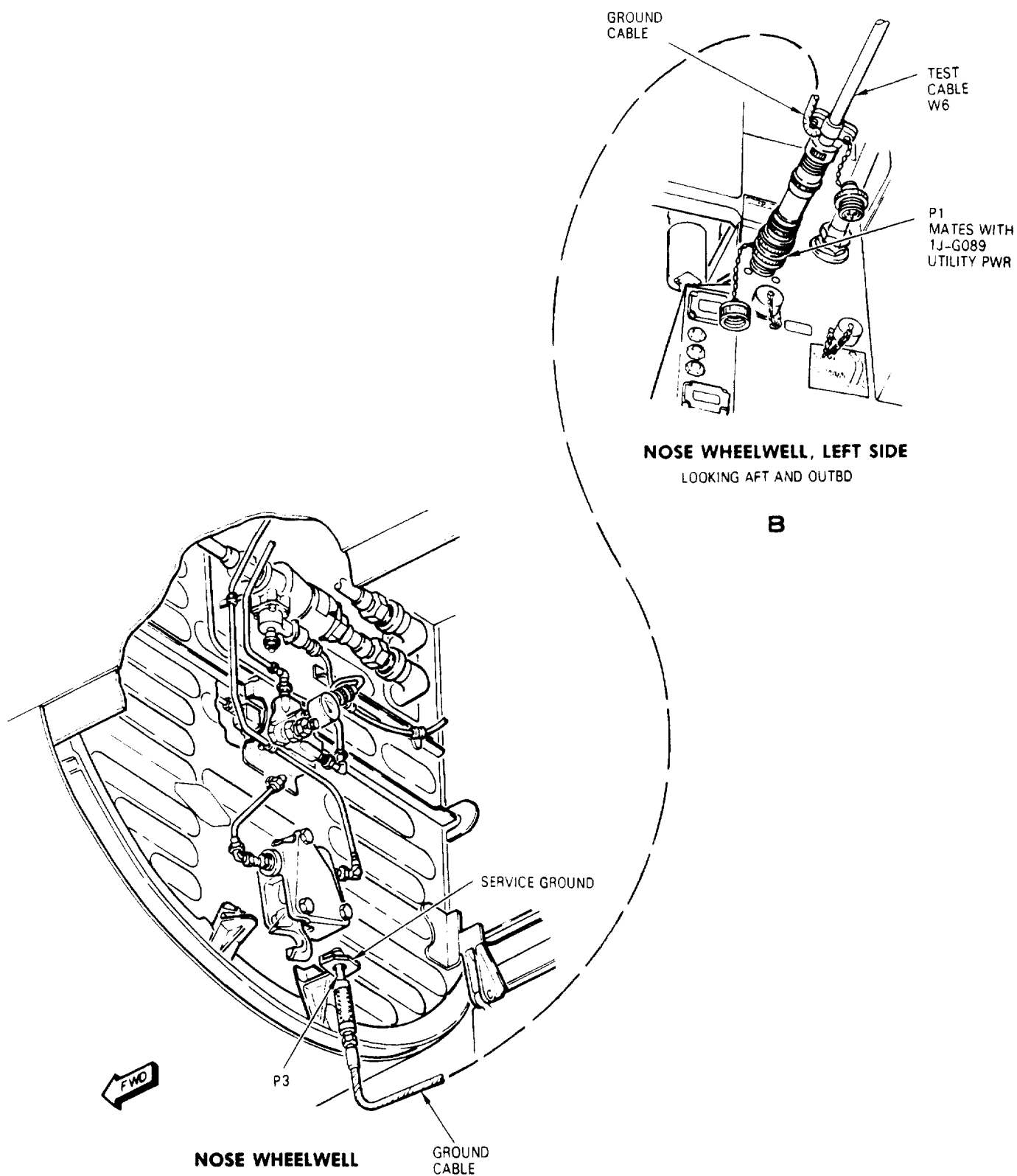
02800102

Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 2)



A

Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 3)



02800104

Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 4)

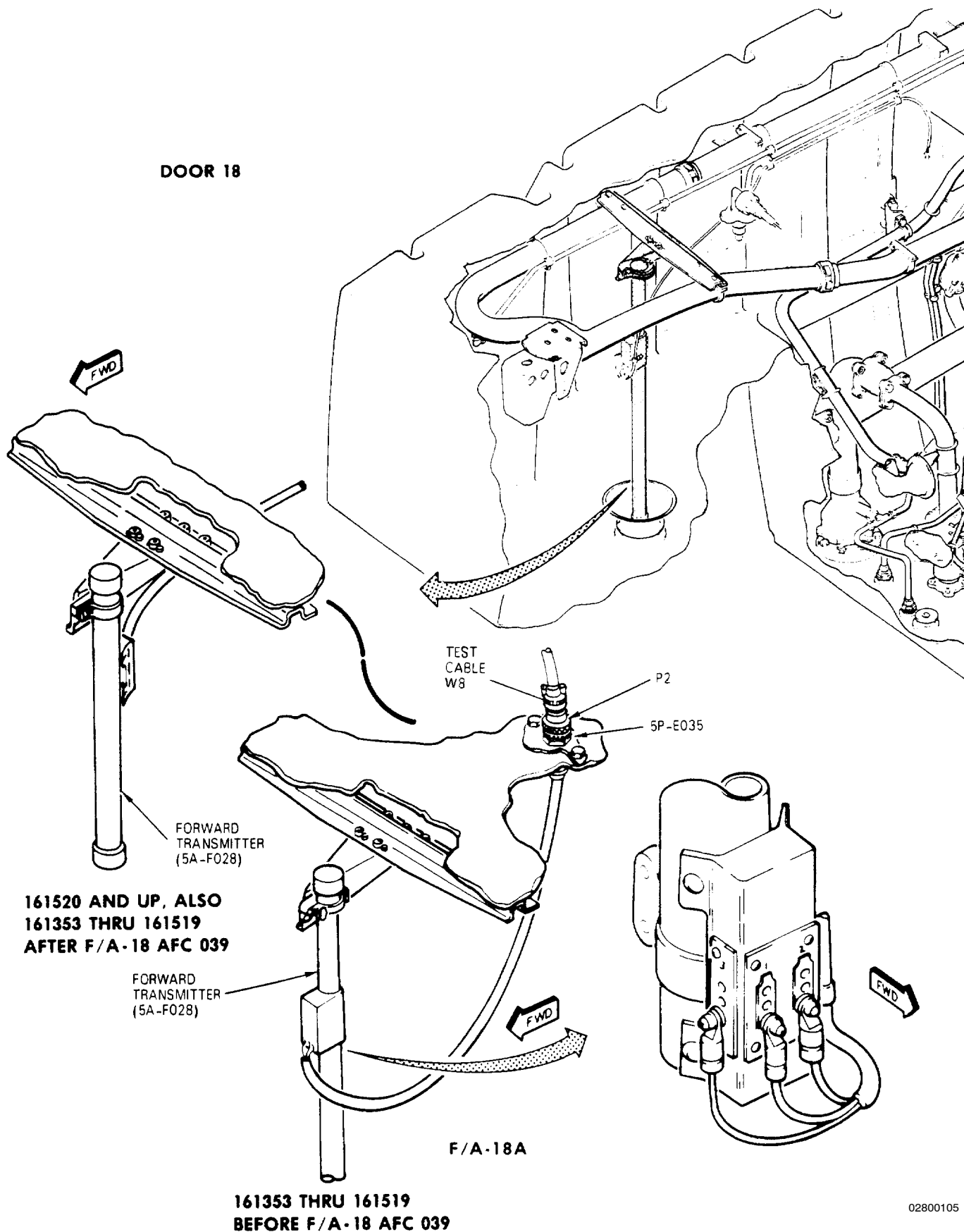
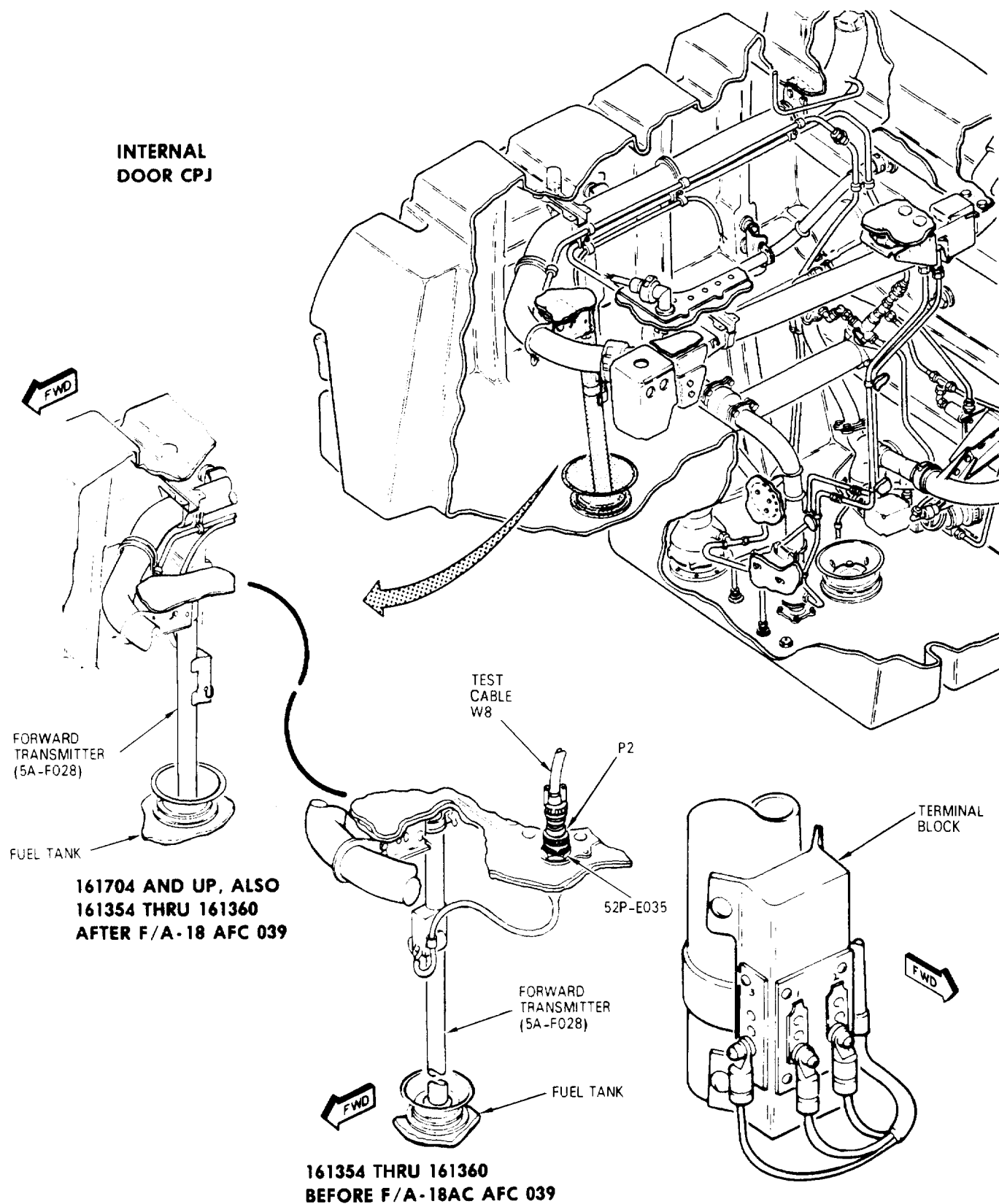
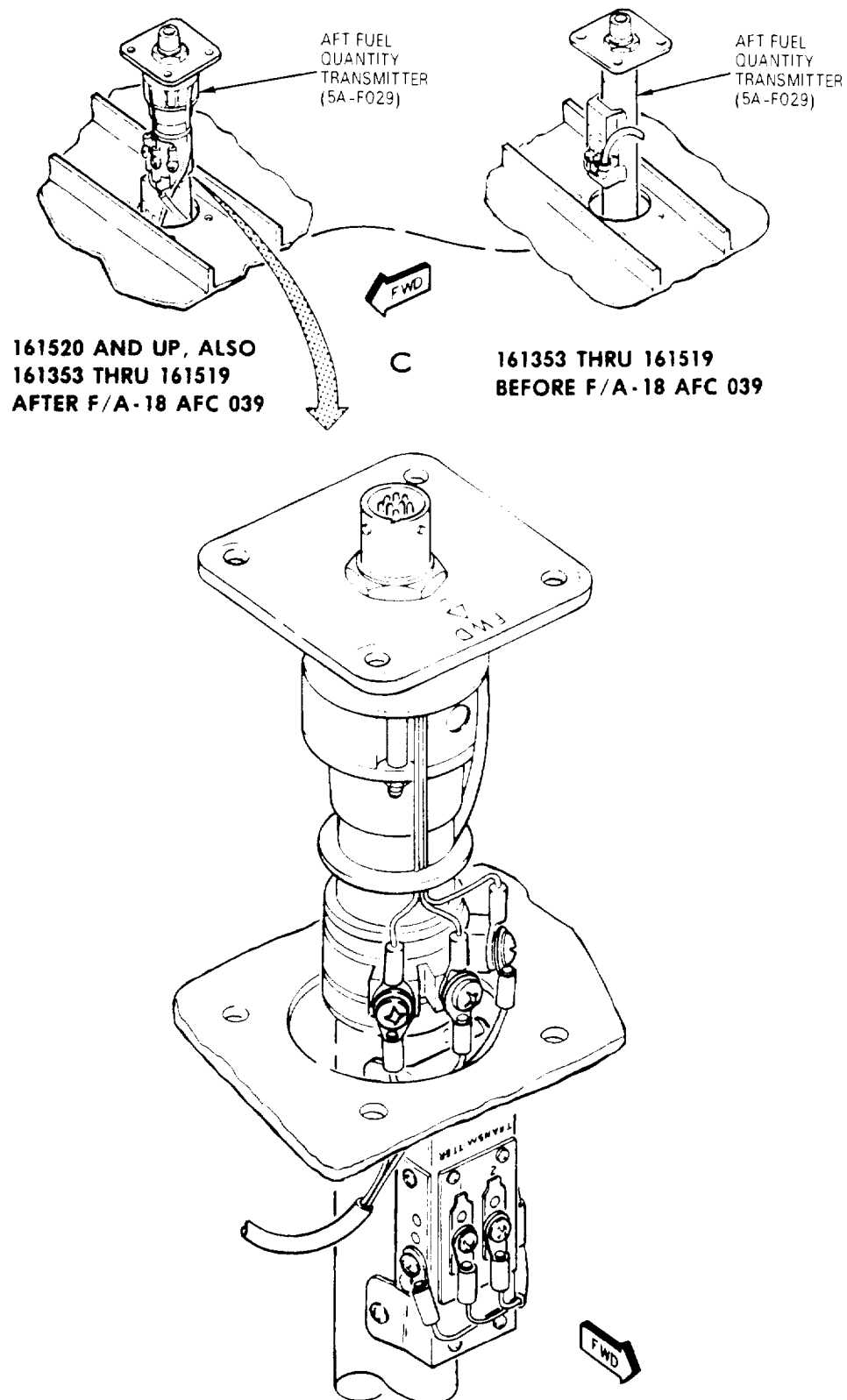


Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 5)



02800106

Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 6)



02800107

Figure 1. No. 1 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 7)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE**TESTING AND TROUBLESHOOTING****NO. 2 FUEL TANK FUEL QUANTITY TRANSMITTER CAPACITANCE TEST****FUEL QUANTITY GAGING SYSTEM**

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
No. 2 Fuel Tank Fuel Quantity Transmitter Capacitance Test, Figure 1	5
No. 2 Fuel Tank Fuel Quantity Transmitter Capacitance Test, Table 1	2

Record of Applicable Technical Directives

None

Table 1. No. 2 Fuel Tank Fuel Quantity Transmitter
Capacitance Test

System Required Components

All system components installed.

Related Systems Required

Electrical System

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

Part Number or
Type Designation

Nomenclature

77/BN
74D510003-1003
(74D510003-1001)

74D510012-1001

Multimeter
Fuel - Liquid Oxygen
Gages A/E24T-159
Test Set

Fuel/Lox Gaging
Test Set Extension
Cable

Materials Required

None


NOTE

Fuel Quantity Gaging System Schematic may be used while doing this test
(A1-F18AC-460-500, WP012 00).

Malfunction is caused by one of the items listed below:

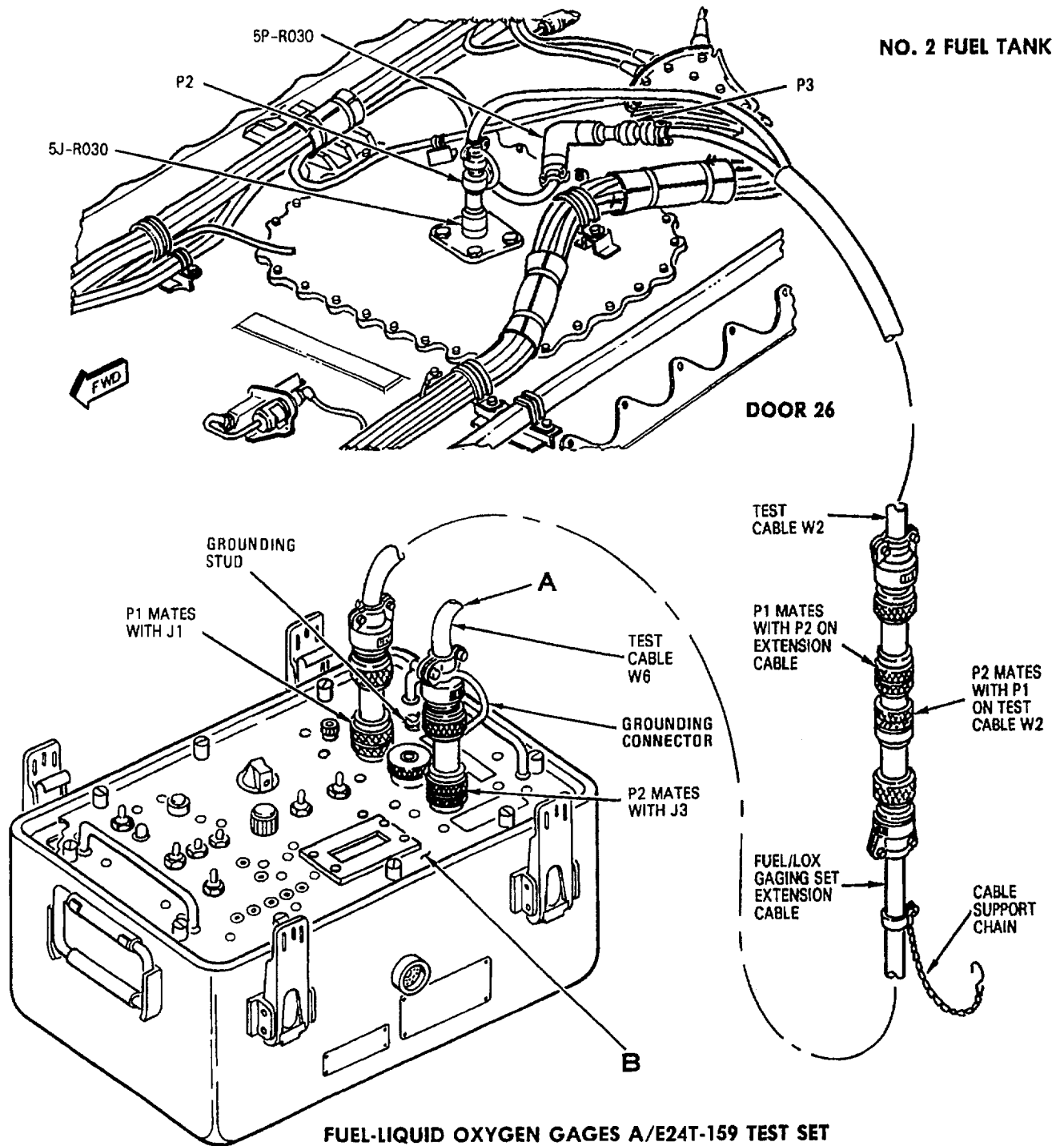
- Aircraft Wiring
- No. 2 Fuel Tank Fuel Quantity Transmitter

**Table 1. No. 2 Fuel Tank Fuel Quantity Transmitter
Capacitance Test (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p align="center">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
<p>a. Do substeps listed below:</p> <ol style="list-style-type: none"> (1) Refuel aircraft to high level shutoff (A1-F18AC-PCM-000). (2) Remove door 26 (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1). (5) Connect P3 on test cable W6 to service ground jack in forward nose wheelwell. (6) Connect P2 on test cable W6 to J3 on test set. (7) Connect grounding connector on test cable W6 to GND stud on test set. (8) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set. (9) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W2. (10) Disconnect connector 5P-R030 (door 26). Connect P2 on test cable W2 to 5JR030. P3 not connected for this test. 		

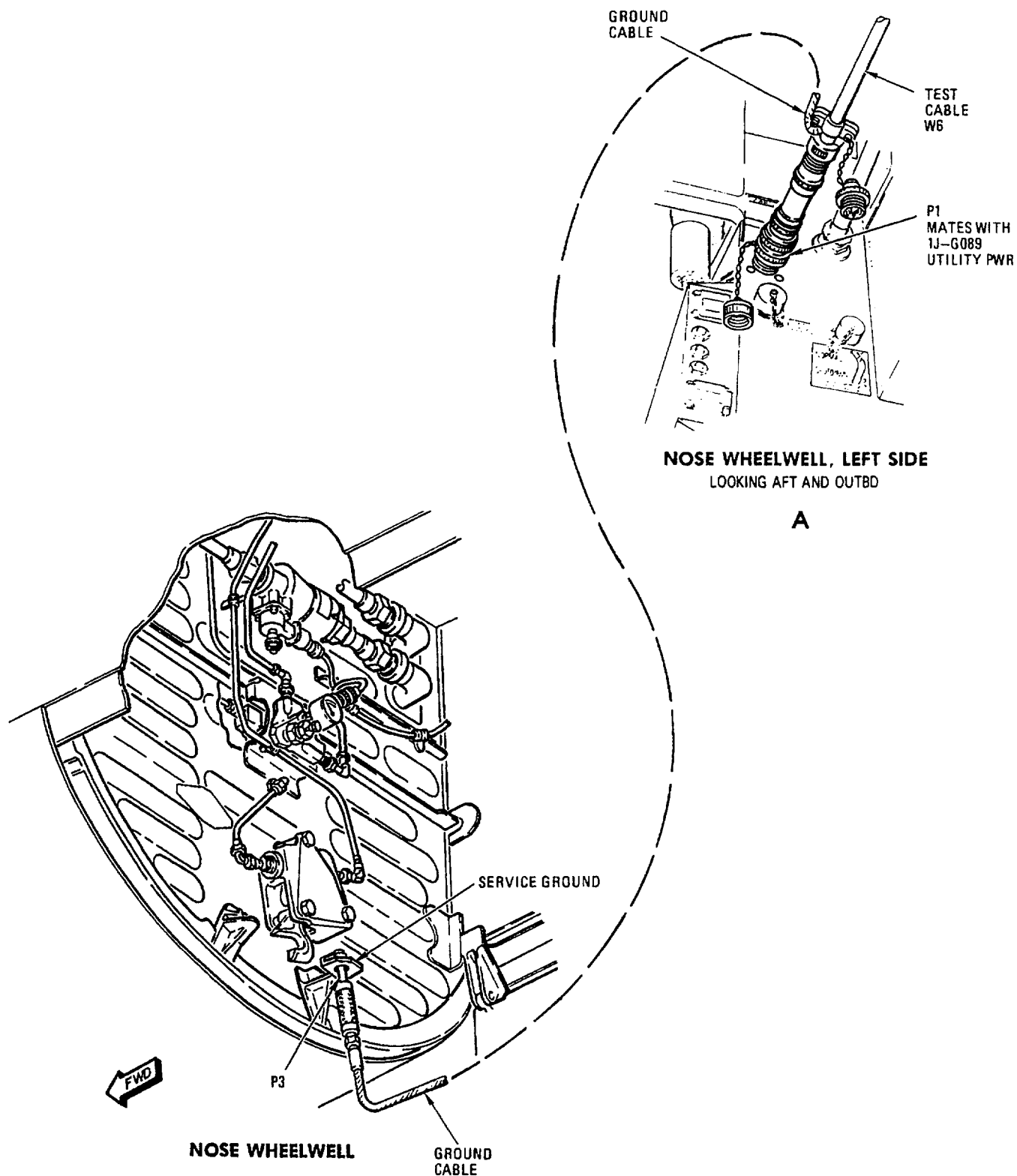
**Table 1. No. 2 Fuel Tank Fuel Quantity Transmitter
Capacitance Test (Continued)**

Procedure	No	Yes
<p>(11) Set switches on test set as listed below:</p> <p>MEASURE/SIMULATE - MEASURE FIXED/VARIABLE - FIXED SENSOR SELECT - T2 LOW LEVEL WARNING - WET MODE - OFF POWER- OFF</p> <p>(12) Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>(13) Set test set POWER switch to ON.</p> <p>(14) Is test set CAPACITANCE display 80.0 ± 2.0 PICO FARADS?</p>	c	b
<p>b. Do substeps below:</p> <p>(1) Set test set POWER switch to OFF.</p> <p>(2) Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>(3) Open door 14R (A1-F18AC-LMM-010).</p> <p>(4) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device.</p> <p>(5) Disconnect test cable from 5P-R030 (door 26).</p> <p>(6) Does continuity exist from:</p> <p>5P-F014A pin 50 to 5P-R030 pin 11 5P-F014A pin 51 to 5P-R030 pin 12 5P-F014A pin 52 to 5P-R030 pin 13?</p>	d	e
<p>c. Replace no. 2 fuel tank fuel quantity transmitter (A1-F18AC-460-300, WP165 00) and do step e</p>	-	-
<p>d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step e</p>	-	-
<p>e. Do substeps listed below:</p> <p>(1) Disconnect test cables.</p> <p>(2) Connect 5P-R030 (door 26) and 5P-F014A (door 14R).</p> <p>(3) Install door 26 (A1-F18AC-LMM-010).</p> <p>(4) Close door 14R (A1-F18AC-LMM-010).</p> <p>(5) Install UTILITY POWER receptacle cover (nose wheelwell, left side)</p>	-	-



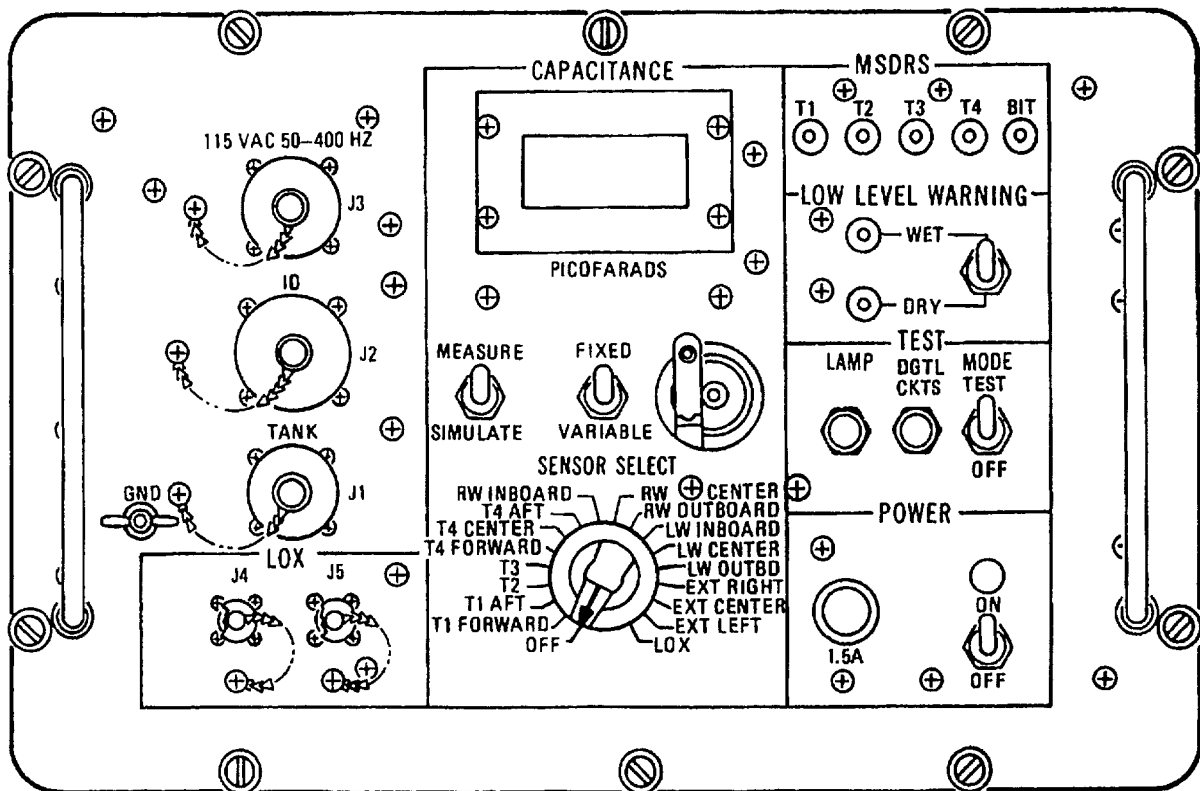
02900101

Figure 1. No. 2 Fuel Tank Fuel Quantity Transmitter Capacitance Test (Sheet 1 of 3)



02900102

Figure 1. No. 2 Fuel Tank Fuel Quantity Transmitter Capacitance Test (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

Figure 1. No. 2 Fuel Tank Fuel Quantity Transmitter Capacitance Test (Sheet 3)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
NO. 3 FUEL TANK FUEL QUANTITY TRANSMITTER CAPACITANCE TEST
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
No. 3 Fuel Tank Fuel Quantity Transmitter Capacitance Test, Figure 1	5
No. 3 Fuel Tank Fuel Quantity Transmitter Capacitance Test, Table 1	1

Record of Applicable Technical Directives

None

**Table 1. No. 3 Fuel Tank Fuel Quantity Transmitter
Capacitance Test**

System Required Components

All system components installed.

Related System Required

Electrical System

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

260-6XLP
(AN/USM-311)
74D510003-1003
(74D510003-1001)

Multimeter

Fuel - Liquid Oxygen
Gages A/E24T-159
Test Set
Fuel/Lox Gaging
Test Set Extension
Cable

74D510012-1001

Materials Required

None


NOTE

Fuel Quantity Gaging System Schematic may be used while doing this test
(A1-F18AC-460-500, WP012 00).

Malfunction is caused by one of the items listed below:

Aircraft Wiring
No. 3 Fuel Tank Fuel Quantity Transmitter

**Table 1. No. 3 Fuel Tank Fuel Quantity Transmitter
Capacitance Test (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
<p>a. Do substeps listed below:</p> <ol style="list-style-type: none"> (1) Refuel aircraft to high level shutoff (A1-F18AC-PCM-000). (2) Remove door 31 (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1). (5) Connect P3 on test cable W6 to service ground jack in forward nose wheelwell. (6) Connect P2 on test cable W6 to J3 on test set. (7) Connect grounding connector on test cable W6 to GND stud on test set. (8) Connect P1 on fuel/lox gaging test set. Extension cable to J1 on test set. (9) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W2. (10) Disconnect connector 5P-R031 (door 31). Connect P2 on test cable W2 to 5JR031. P3 not connected for this test. 		

**Table 1. No. 3 Fuel Tank Fuel Quantity Transmitter
Capacitance Test (Continued)**

Procedure	No	Yes
<p>(11) Set switches on test set as listed below:</p> <p>MEASURE/SIMULATE - MEASURE FIXED/VARIABLE - FIXED SENSOR SELECT - T3 LOW LEVEL WARNING - WET MODE - OFF POWER - OFF</p> <p>(12) Turn on external electrical power (A1-F18AC-LMM-000).</p> <p>(13) Set test set POWER switch to ON.</p> <p>(14) Is test set CAPACITANCE display 79.2 ± 2.0 PICO FARADS?</p>	c	b
<p>b. Do substeps below:</p> <p>(1) Set test set POWER switch to OFF.</p> <p>(2) Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>(3) Open door 14R (A1-F18AC-LMM-010).</p> <p>(4) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device.</p> <p>(5) Disconnect test cable from 5P-R031 (door 31).</p> <p>(6) Does continuity exist from:</p> <p>5P-F014A pin 44 to 5P-R031 pin 11 5P-F014A pin 45 to 5P-R031 pin 12 5P-F014A pin 46 to 5P-R031 pin 13?</p>	d	e
<p>c. Replace no. 3 fuel tank quantity transmitter (A1-F18AC-460-300, WP166 00) and do step e</p>	-	-
<p>d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step e</p>	-	-
<p>e. Do substeps listed below:</p> <p>(1) Disconnect test cables.</p> <p>(2) Connect 5P-R031 (door 31) and 5P-F014A (door 14R).</p> <p>(3) Install door 31 (A1-F18AC-LMM-010).</p> <p>(4) Close door 14R (A1-F18AC-LMM-010).</p> <p>(5) Install UTILITY POWER receptacle cover (nose wheelwell, left side)</p>	-	-

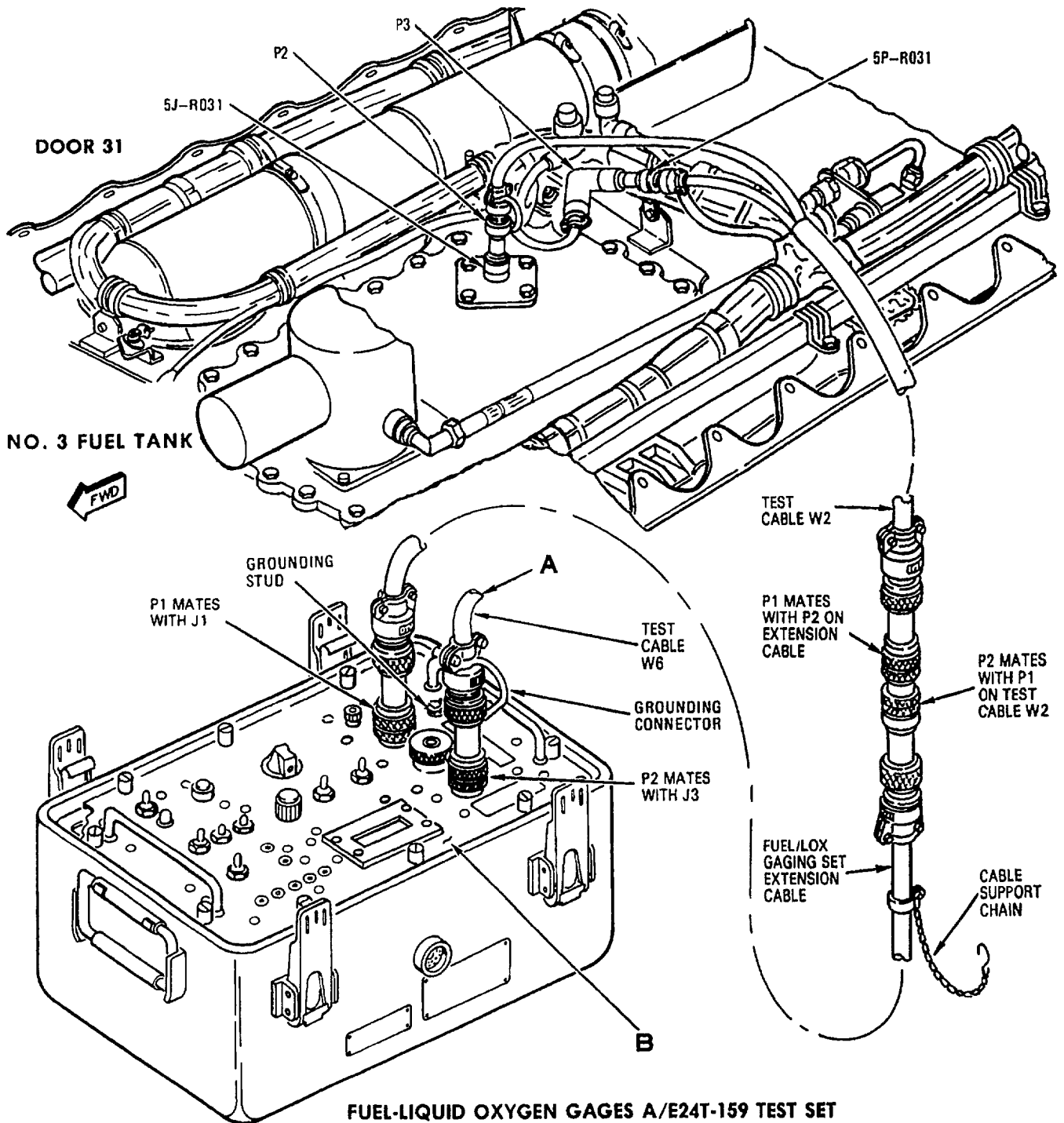
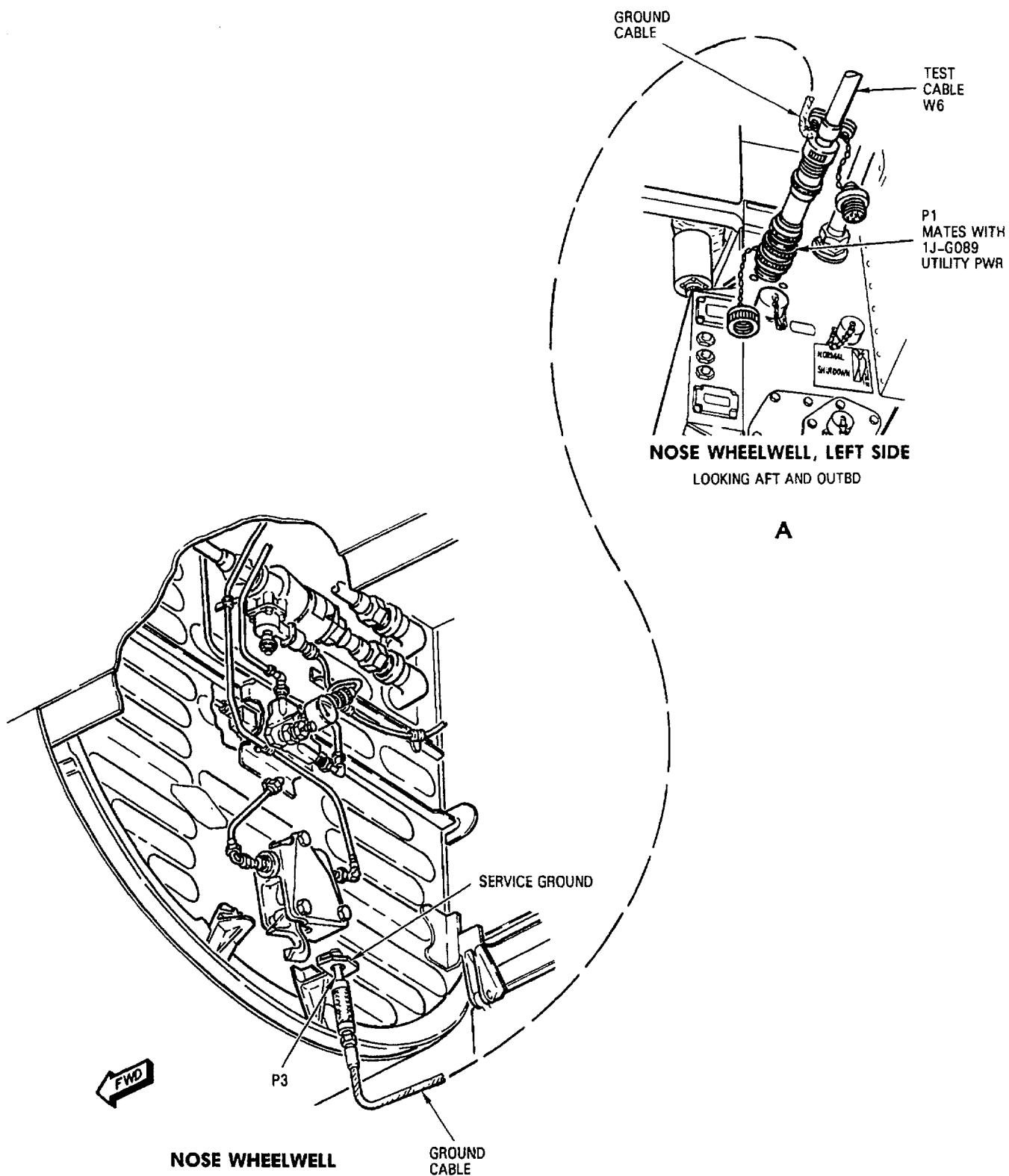
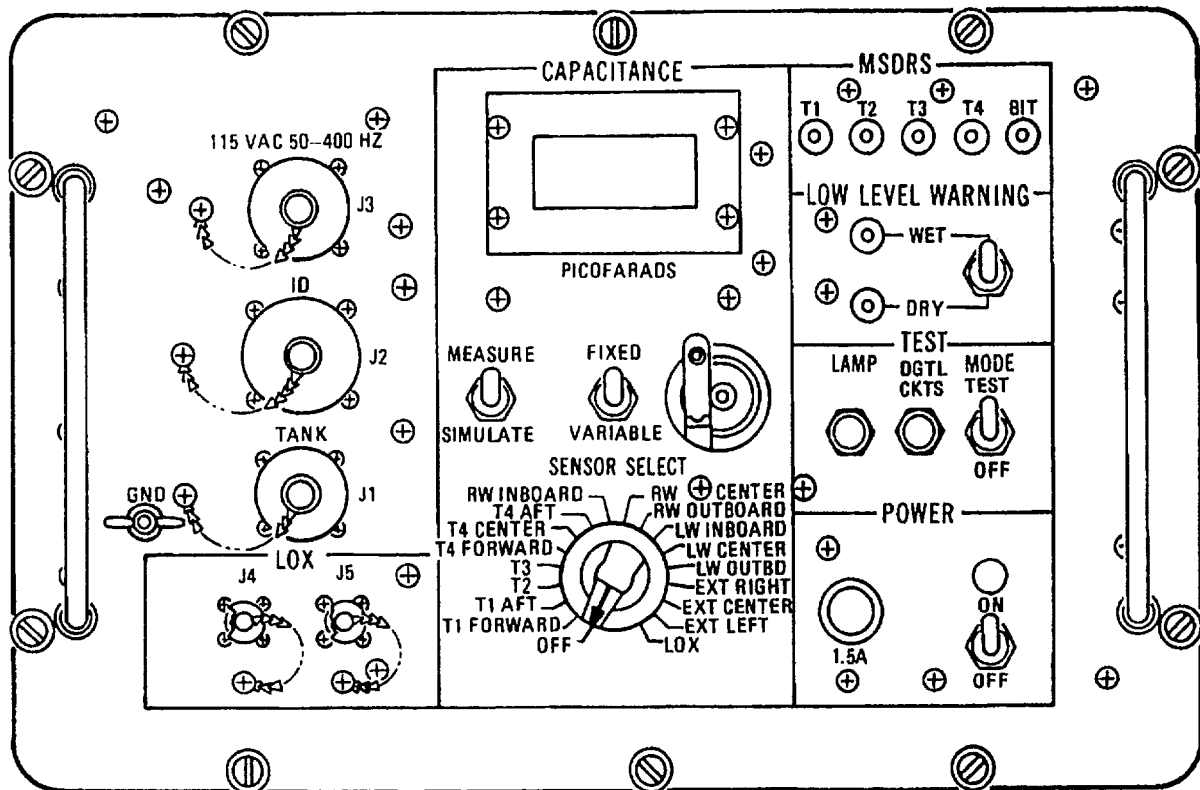


Figure 1. No. 3 Fuel Tank Fuel Quantity Transmitter Capacitance Test (Sheet 1 of 3)



03000102

Figure 1. No. 3 Fuel Tank Fuel Quantity Transmitter Capacitance Test (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

Figure 1. No. 3 Fuel Tank Fuel Quantity Transmitter Capacitance Test (Sheet 3)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE**TESTING AND TROUBLESHOOTING****NO. 4 FUEL TANK FUEL QUANTITY TRANSMITTERS CAPACITANCE TEST****FUEL QUANTITY GAGING SYSTEM**

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test, Figure 1	7
No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test, Table 1	1

Record of Applicable Technical Directives

None

**Table 1. No. 4 Fuel Tank Fuel Quantity Transmitters
Capacitance Test**

System Required Components

All system components installed.

Related Systems Required

Electrical System

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

77/BN
74D510003-1003
(74D510003-1001)

Multimeter
Fuel - Liquid Oxygen
Gages A/E24T-159
Test Set

74D510012-1001

Fuel/Lox Gaging
Test Set Extension
Cable

Materials Required

None


NOTE

Fuel Quantity Gaging System Schematic may be used while doing this test
(A1-F18AC-460-500, WP012 00).

Malfunction is caused by one of the items listed below:

Aircraft Wiring
No. 4 Fuel Tank Aft Fuel Quantity Transmitter

**Table 1. No. 4 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p align="center">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
<p>a. Do substeps listed below:</p> <ol style="list-style-type: none"> (1) Refuel aircraft to high level shutoff (A1-F18AC-PCM-000). (2) Remove door 49 (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1). (5) Connect P3 on test cable W6 to service ground jack in forward, nose wheelwell. (6) Connect P2 on test cable W6 to J3 on test set. (7) Connect grounding connector on test cable W6 to GND stud on test set. (8) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set. (9) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W4. (10) Disconnect 5P-R034 from no. 4 fuel tank aft transmitter (door 49). Connect P4 on test cable W4 to 5J-R034. 		

**Table 1. No. 4 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

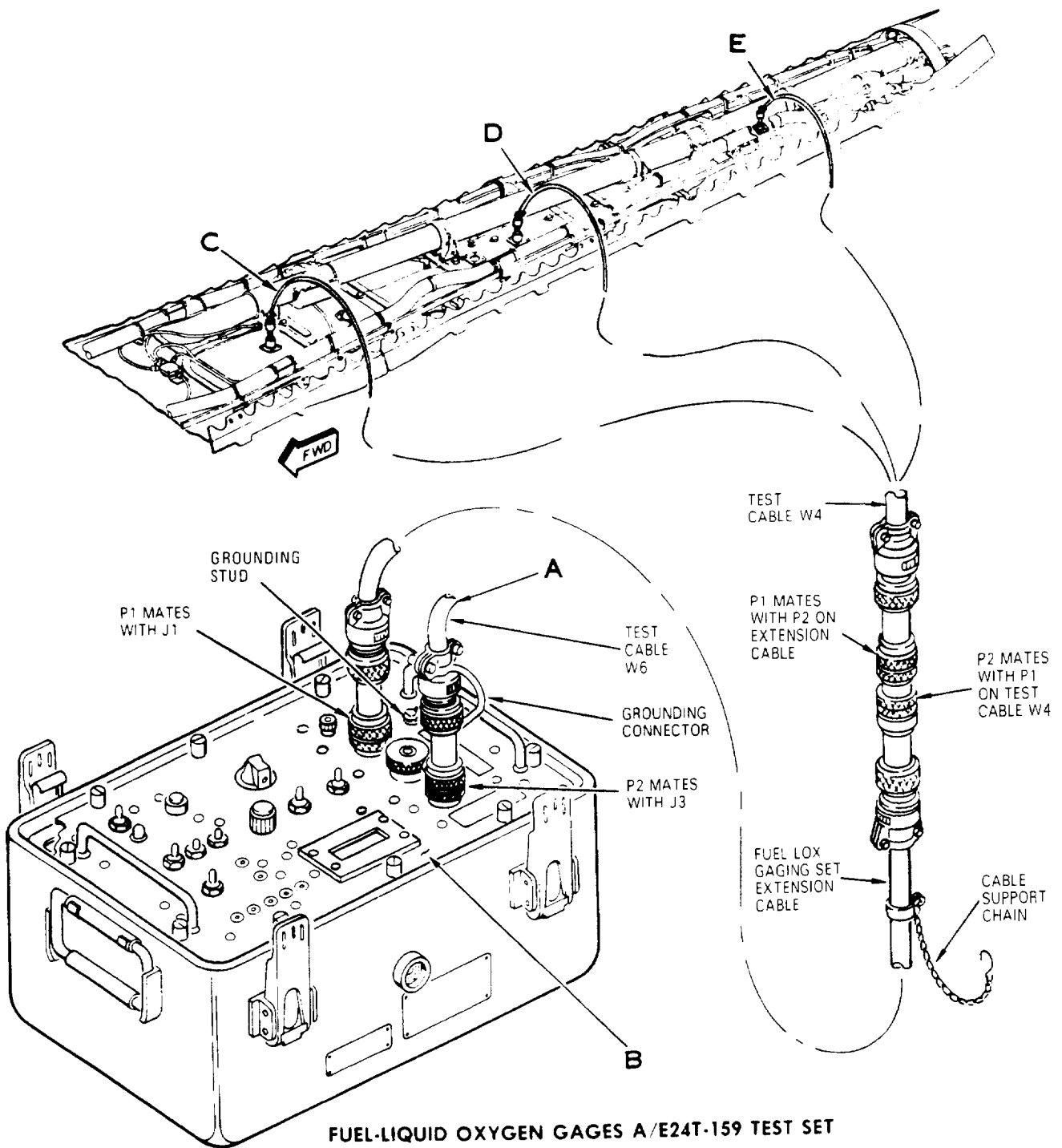
Procedure	No	Yes
(11) Set switches on test set as listed below: MEASURE/SIMULATE - MEASURE FIXED/VARIABLE - FIXED SENSOR SELECT - T4 AFT LOW LEVEL WARNING - WET MODE - OFF POWER - OFF		
(12) Turn on external electrical power (A1-F18AC-LMM-000).		
(13) Set test set POWER switch to ON.		
(14) Is test set CAPACITANCE display 36.1 ± 2.0 PICOFARADS?	b	c
b. Replace no. 4 fuel tank aft fuel quantity transmitter (A1-F18AC-460-300, WP167 00) and do step k	-	-
c. Do substeps listed below:		
(1) Set test set POWER switch to OFF.		
(2) Open door 14R (A1-F18AC-LMM-010).		
(3) Turn off external electrical power (A1-F18AC-LMM-000).		
(4) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device (door 14R).		
(5) Disconnect test cable from 5P-R034 (door 49).		
(6) Does continuity exist from: 5P-F014A pin 38 to 5P-R034 pin 4 5P-F014A pin 39 to 5P-R034 pin 5 5P-F014A pin 40 to 5P-R034 pin 6?	d	e
d. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step k	-	-
e. Do substeps listed below:		
(1) Remove door 43 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-R033 from no. 4 fuel tank center transmitter (door 43).		
(3) Connect P3 on test cable W4 to 5J-R033 (center transmitter).		
(4) Set test set SENSOR SELECT switch to T4 CENTER.		

**Table 1. No. 4 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

Procedure	No	Yes
(5) Turn on external electrical power (A1-F18AC-LMM-000).		
(6) Set test set POWER switch to ON. Allow test set 1 minute to warmup.		
(7) Is test set CAPACITANCE display 42.8 ± 2.0 PICOFARADS?	f	g
f. Replace no. 4 fuel tank center fuel quantity transmitter (A1-F18AC-460-300, WP167 00) and do step k	-	-
g. Do substeps listed below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device (door 14R).		
(4) Disconnect test cable from 5P-R033 (door 43).		
(5) Does continuity exist from:		
5P-F014A pin 38 to 5P-R033 pin 4		
5P-F014A pin 39 to 5P-R033 pin 5		
5P-F014A pin 40 to 5P-R033 pin 6?	d	h
h. Do substeps listed below:		
(1) Remove door 40 (A1-F18AC-LMM-010).		
(2) Disconnect 5P-R032 from no. 4 fuel tank forward transmitter (door 40).		
(3) Connect P2 on test cable W4 to 5J-R032 (forward transmitter).		
(4) Set test set SENSOR SELECT switch to T4 FORWARD.		
(5) Turn on external electrical power (A1-F18AC-LMM-000).		
(6) Set test set POWER switch to ON. Allow test set 1 minute to warmup.		
(7) Is test set CAPACITANCE display 43.3 ± 2.0 PICOFARADS?	i	j
i. Replace no. 4 fuel tank forward fuel quantity transmitter (A1-F18AC-460-300, WP167 00) and do step k	-	-
j. Do substeps below:		
(1) Set test set POWER switch to OFF.		

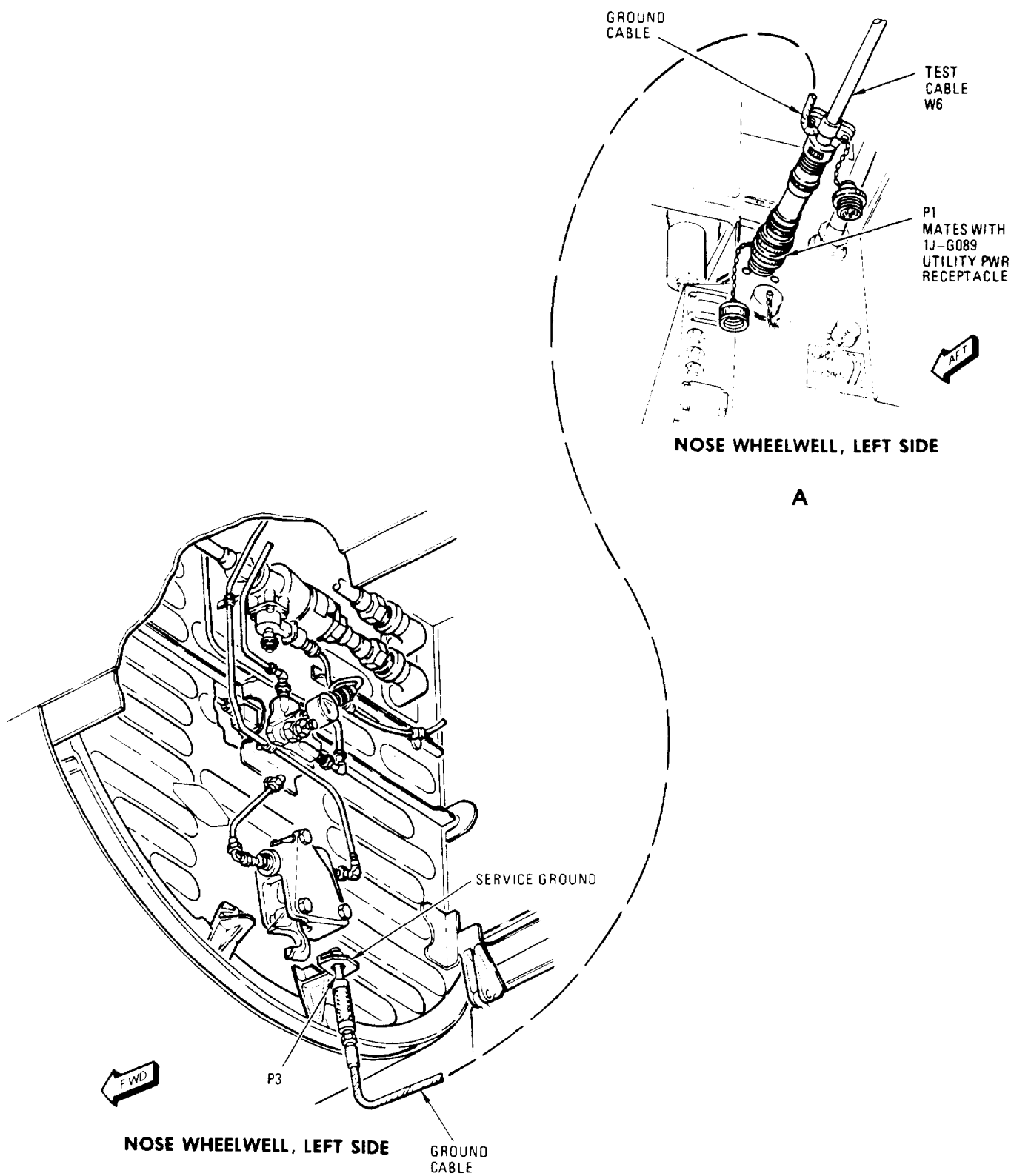
**Table 1. No. 4 Fuel Tank Fuel Quantity Transmitters
Capacitance Test (Continued)**

Procedure	No	Yes
(2) Turn off external electrical power (A1-F18AC-LMM-000). (3) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device (door 14R). (4) Disconnect test cable from 5P-R032 (door 40). (5) Does continuity exist from: 5P-F014A pin 38 to 5P-R032 pin 4 5P-F014A pin 39 to 5P-R032 pin 5 5P-F014A pin 40 to 5P-R032 pin 6?	d	k
k. Do substeps below:		
(1) Disconnect test cables. (2) If disconnected, removed, or opened during this procedure, make sure the items listed below are connected, installed, or closed: (a) Connector 5P-R032 to 5J-R032 (forward transmitter, door 40). (b) Connector 5P-R033 to 5J-R033 (center transmitter, door 43). (c) Connector 5P-R034 to 5J-R034 (aft transmitter, door 49). (d) Doors 40, 43, and 49 (A1-F18AC-LMM-010). (e) Connector 5P-F014A to J1 on fuel quantity gaging intermediate device (door 14R). (f) Door 14R (A1-F18AC-LMM-010). (g) UTILITY POWER receptacle cover (nose wheelwell, left side)	-	-



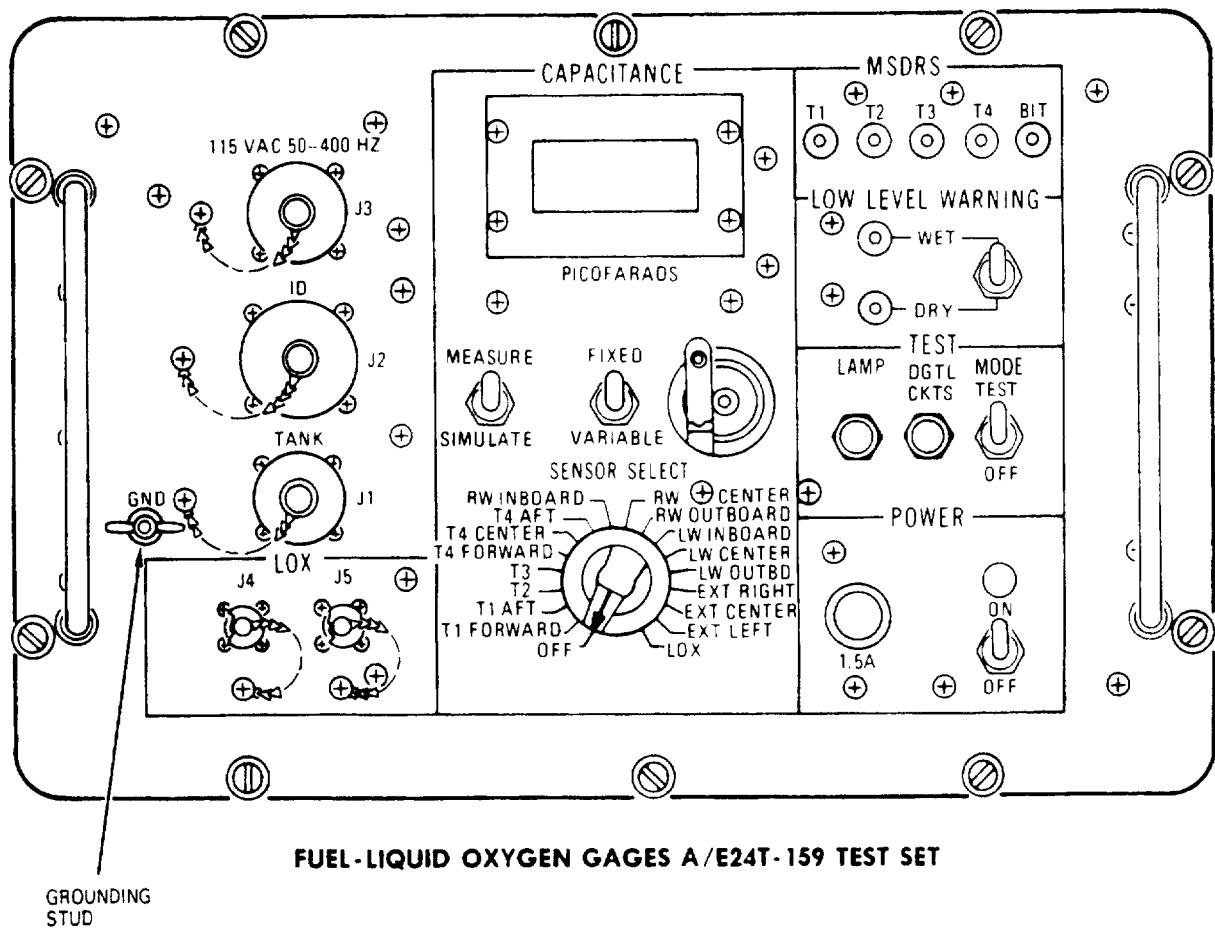
03100101

Figure 1. No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 1 of 6)



03100102

Figure 1. No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 2)



B

Figure 1. No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 3)

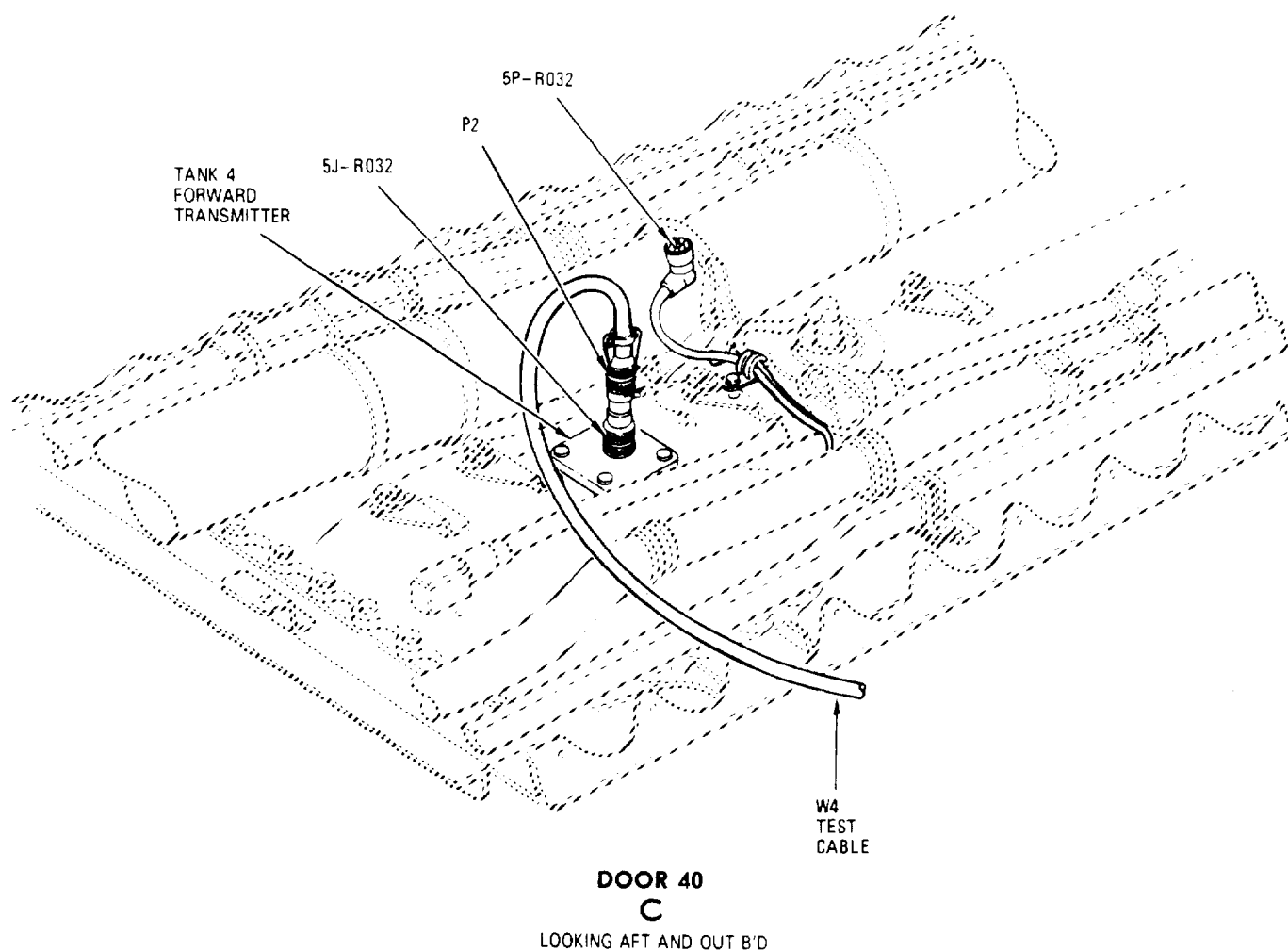


Figure 1. No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 4)

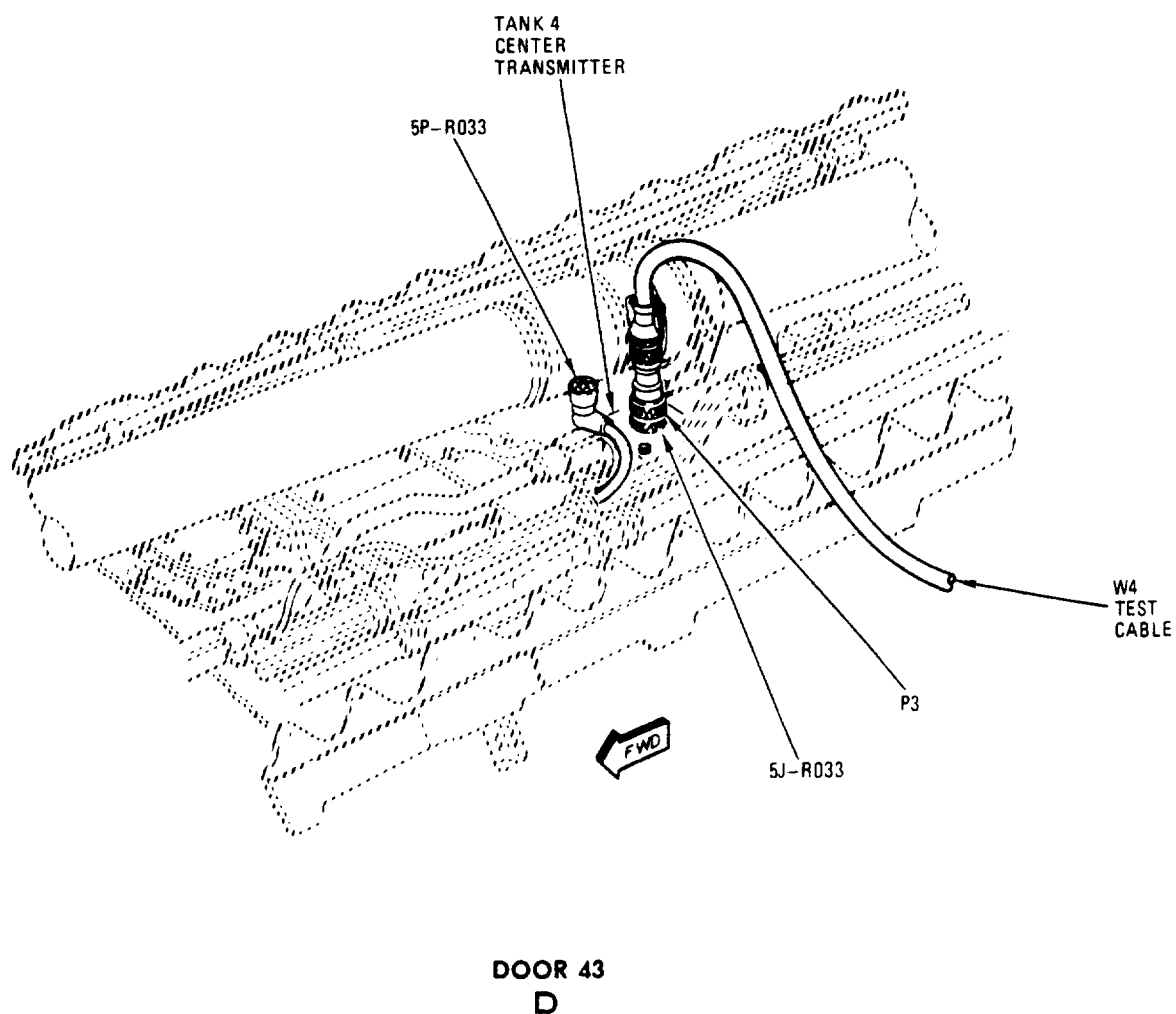


Figure 1. No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 5)

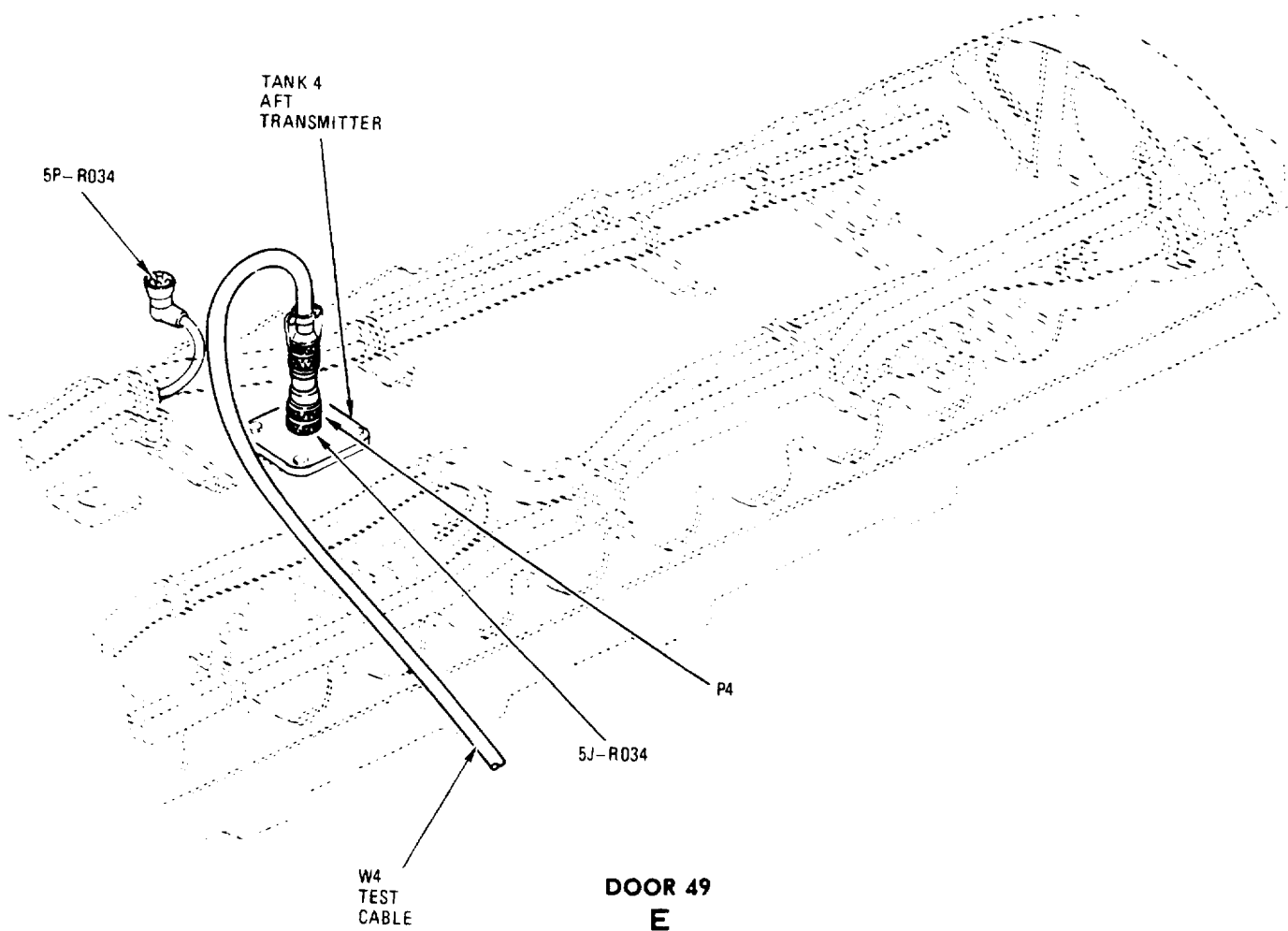


Figure 1. No. 4 Fuel Tank Fuel Quantity Transmitters Capacitance Test (Sheet 6)

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
LEFT WING FUEL QUANTITY TRANSMITTER CAPACITANCE TEST
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Left Wing Fuel Quantity Transmitter Capacitance Test, Figure 1	6
Left Wing Fuel Quantity Transmitter Capacitance Test, Table 1	2

Record of Applicable Technical Directives

None

Table 1. Left Wing Fuel Quantity Transmitter Capacitance Test

System Required Components	
All system components installed.	
Related Systems Required	
Electrical System	
Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
74D510003-1003 (74D510003-1001)	Fuel - Liquid Oxygen Gages A/E24T-159 Test Set
74D510012-1001	Fuel/Lox Gaging Test Set Extension Cable
Materials Required	
None	
NOTE	
Fuel Quantity Gaging System Schematic may be used while doing this test (A1-F18AC-460-500, WP012 00).	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
Left Wing Center Fuel Quantity Transmitter	
Left Wing Inboard Fuel Quantity Transmitter	
Left Wing Outboard Fuel Quantity Transmitter	

Table 1. Left Wing Fuel Quantity Transmitter Capacitance Test (Continued)


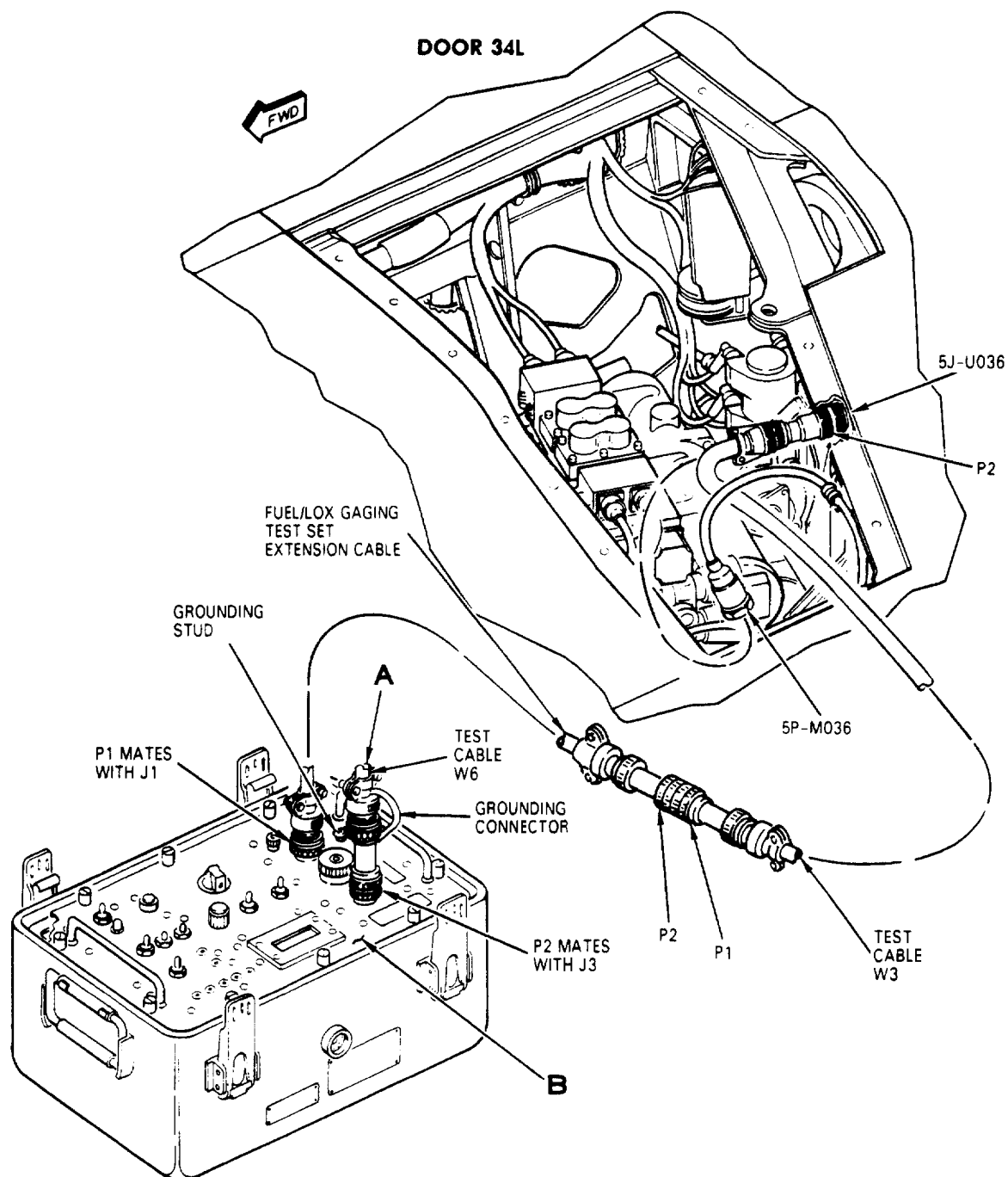
Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>a. Do substeps listed below:</p> <ol style="list-style-type: none"> (1) Refuel aircraft to high level shutoff (A1-F18AC-PCM-000). (2) Remove door 34L (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1). (5) Connect P3 on test cable W6 to service ground jack in forward, nose wheelwell. (6) Connect P2 on test cable W6 to J3 on test set. (7) Connect grounding connector on test cable W6 to GND stud on test set. (8) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set. (9) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W3. (10) Disconnect connector 5P-M036 (door 34L). Connect P2 on test cable W3 to 5J-U036. (11) Set switches on test set as listed below: <ul style="list-style-type: none"> MEASURE/SIMULATE - MEASURE FIXED/VARIABLE - FIXED SENSOR SELECT - LW INBOARD LOW LEVEL WARNING - WET MODE - OFF POWER - OFF 		

Table 1. Left Wing Fuel Quantity Transmitter Capacitance Test (Continued)

Procedure	No	Yes
(12) Turn on external electrical power (A1-F18AC-LMM-000).		
(13) Set test set POWER switch to ON.		
(14) Is test set CAPACITANCE display 5.8 ± 0.5 PICO FARADS?	d	b
b. Set test box SENSOR SELECT switch to LW CENTER. Is test set CAPACITANCE display 4.8 ± 0.5 PICO FARADS?	g	c
c. Set test box SENSOR SELECT switch to LW OUTBD. Is test set CAPACITANCE display 2.3 ± 0.5 PICO FARADS?	i	k
d. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect test cable from 5J-U036 (door 34L).		
(4) Remove wing internal access cover (A1-F18AC-460-300, WP168 00).		
(5) Does continuity exist from:		
5J-U036 pin 5 to 5A-U039 terminal T3		
5J-U036 pin 6 to 5A-U039 terminal T2		
5J-U036 pin 7 to 5A-U039 terminal T1?	e	f
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step 1	-	-
f. Replace left wing inboard fuel quantity transmitter (A1-F18AC-460-300, WP168 00) and do step 1	-	-
g. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect test cable from 5J-U036 (door 34L).		
(4) Remove door 76L (A1-F18AC-LMM-010).		
(5) Does continuity exist from:		
5J-U036 pin 8 to 5A-U038 terminal T3		
5J-U036 pin 9 to 5A-U038 terminal T2		
5J-U036 pin 10 to 5A-U038 terminal T1?	e	h
h. Replace left wing center fuel quantity transmitter (A1-F18AC-460-300, WP169 00) and do step 1	-	-

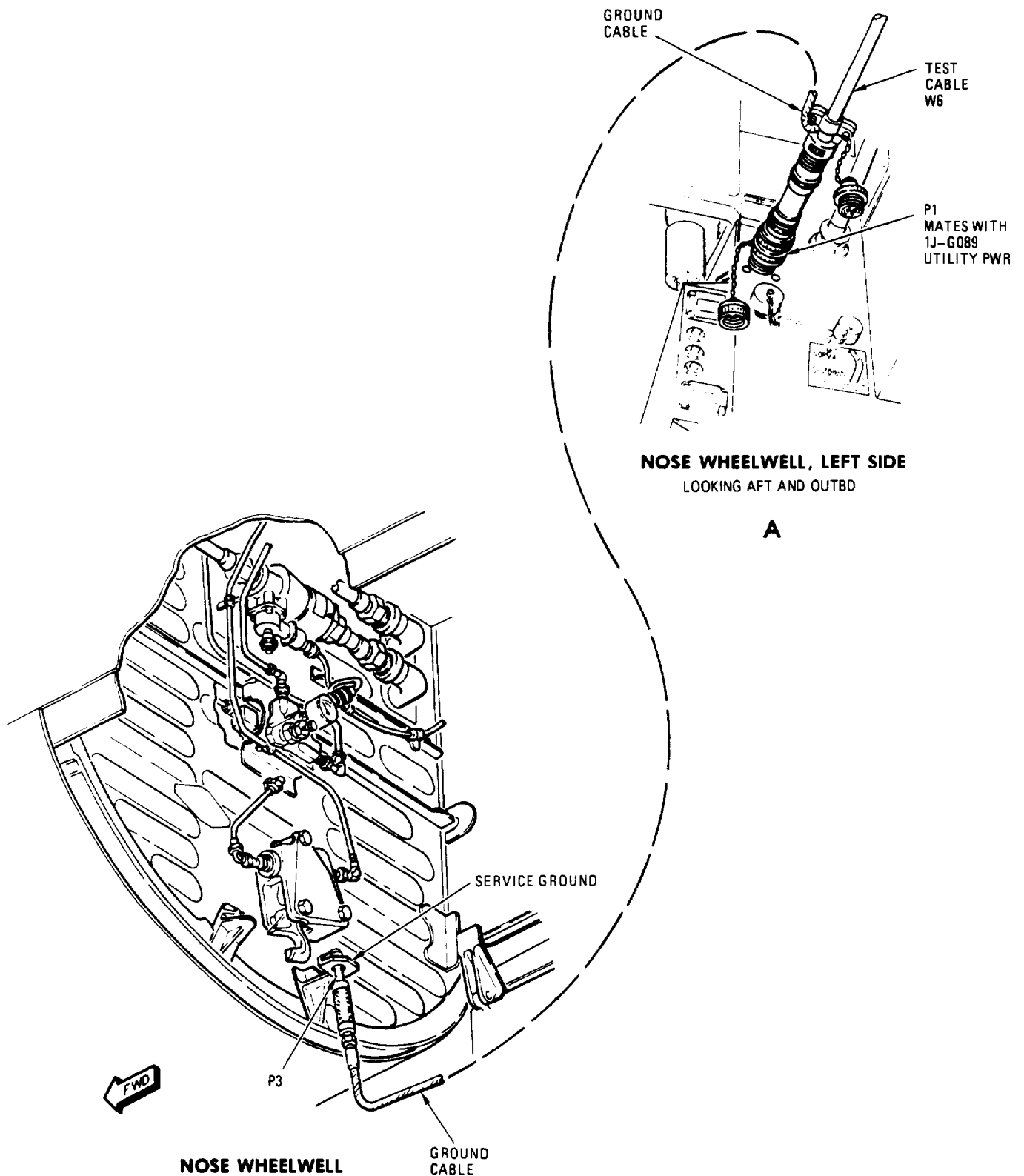
Table 1. Left Wing Fuel Quantity Transmitter Capacitance Test (Continued)

Procedure	No	Yes
i. Do substeps below: (1) Set test set POWER switch to OFF. (2) Turn off external electrical power (A1-F18AC-LMM-000). (3) Disconnect test cable from 5J-U036 (door 34L). (4) Remove door 77L (A1-F18AC-LMM-010). (5) Does continuity exist from: 5J-U036 pin 11 to 5A-U037 terminal T3 5J-U036 pin 12 to 5A-U037 terminal T2 5J-U036 pin 13 to 5A-U037 terminal T1?	e	j
j. Replace left wing outboard fuel quantity transmitter (A1-F18AC-460-300, WP170 00)	-	-
k. Do substeps below: (1) Set test set POWER switch to OFF. (2) Open door 14R (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device (door 14R). (5) Does continuity exist from: 5P-F014A pin 35 to 5P-M036 pin 5 5P-F014A pin 35 to 5P-M036 pin 8 5P-F014A pin 35 to 5P-M036 pin 11 5P-F014A pin 36 to 5P-M036 pin 6 5P-F014A pin 36 to 5P-M036 pin 9 5P-F014A pin 36 to 5P-M036 pin 12 5P-F014A pin 37 to 5P-M036 pin 7 5P-F014A pin 37 to 5P-M036 pin 10 5P-F014A pin 37 to 5P-M036 pin 13?	e	l
l. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed: (1) Connector 5P-F014A to J1 on fuel quantity gaging intermediate device (door 14R). (2) Doors 14R, 34L, 76L and 77L (A1-F18AC-LMM-010). (3) Disconnect test cables. (4) Connect 5P-M036 to 5J-U036 (door 34L). (5) Wing internal access cover (A1-F18AC-460-300, WP168 00).		



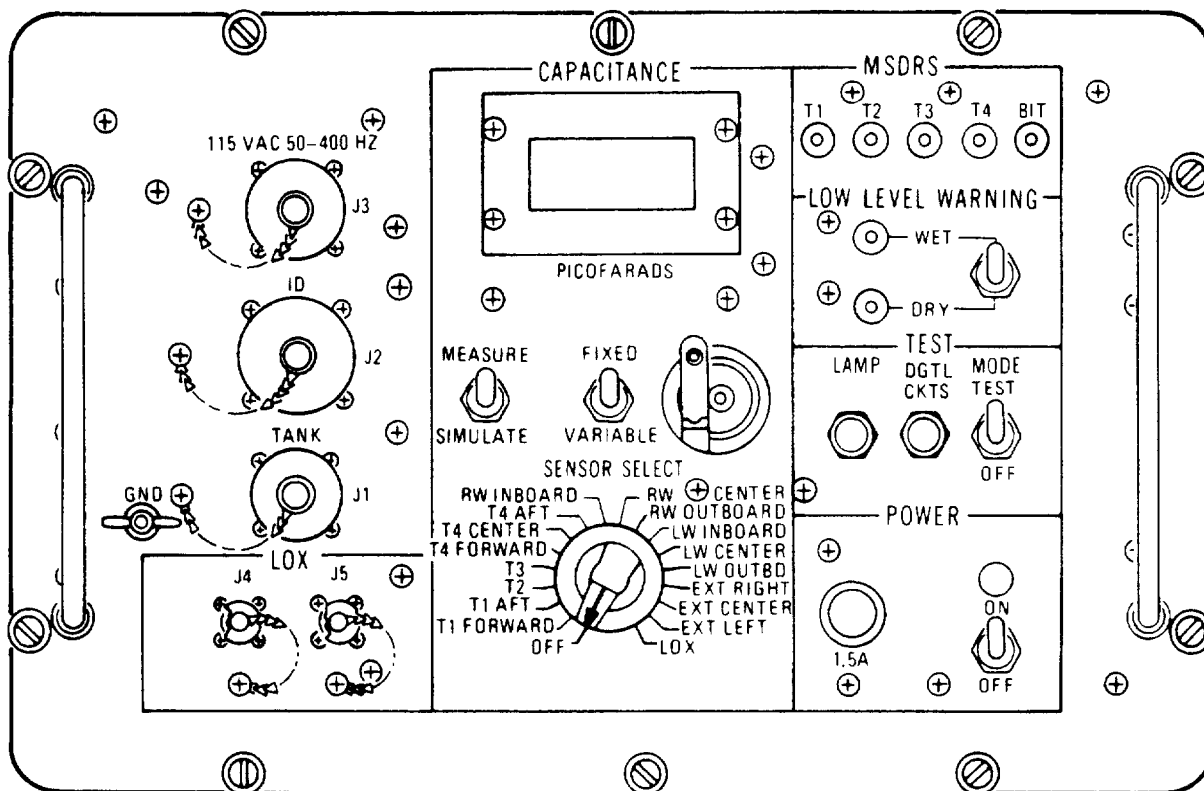
FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

Figure 1. Left Wing Fuel Quantity Transmitters Capacitance Test (Sheet 1 of 6)



03200102

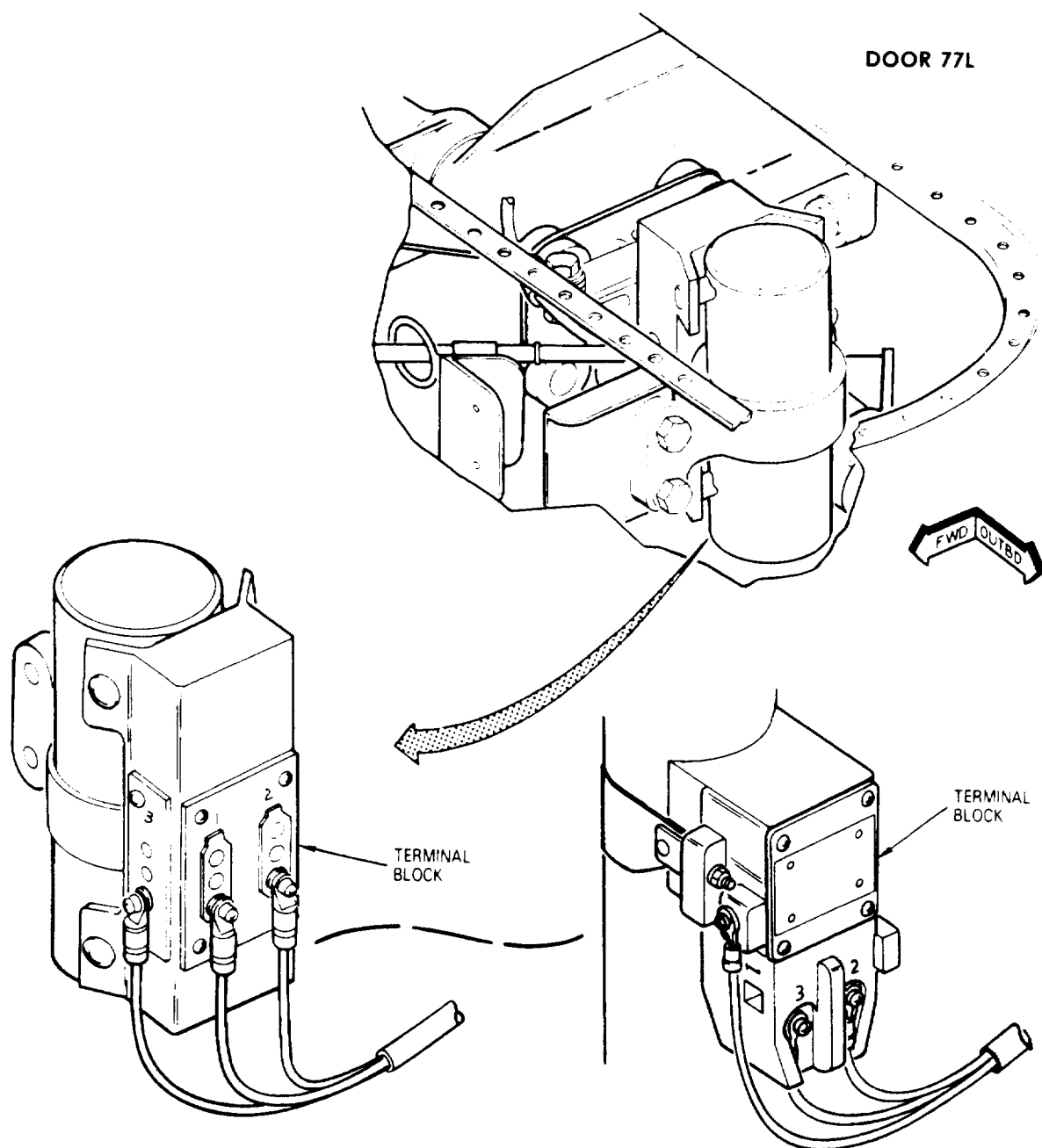
Figure 1. Left Wing Fuel Quantity Transmitters Capacitance Test (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

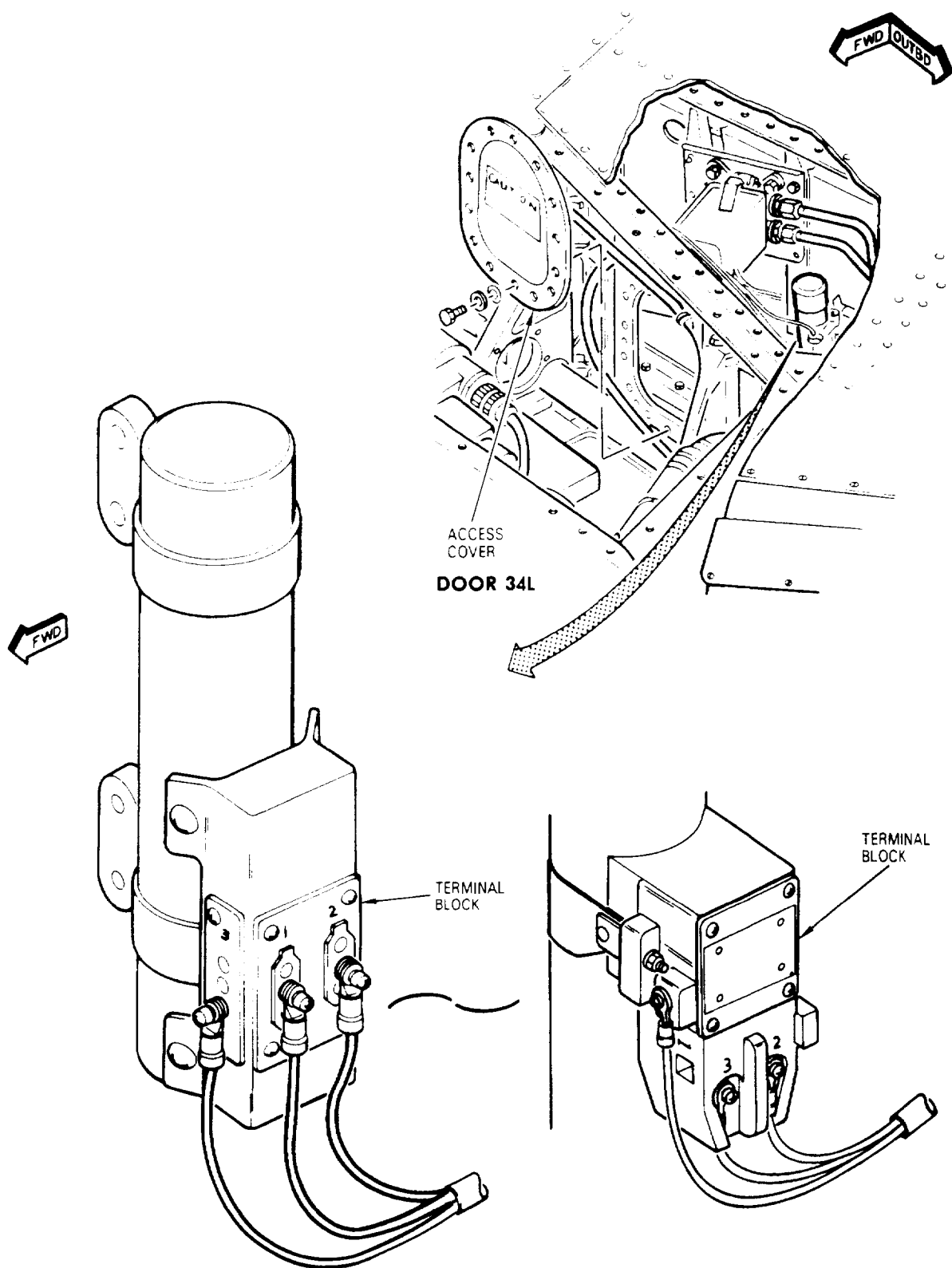
B

Figure 1. Left Wing Fuel Quantity Transmitters Capacitance Test (Sheet 3)



03200104

Figure 1. Left Wing Fuel Quantity Transmitters Capacitance Test (Sheet 4)



03200105

Figure 1. Left Wing Fuel Quantity Transmitters Capacitance Test (Sheet 5)

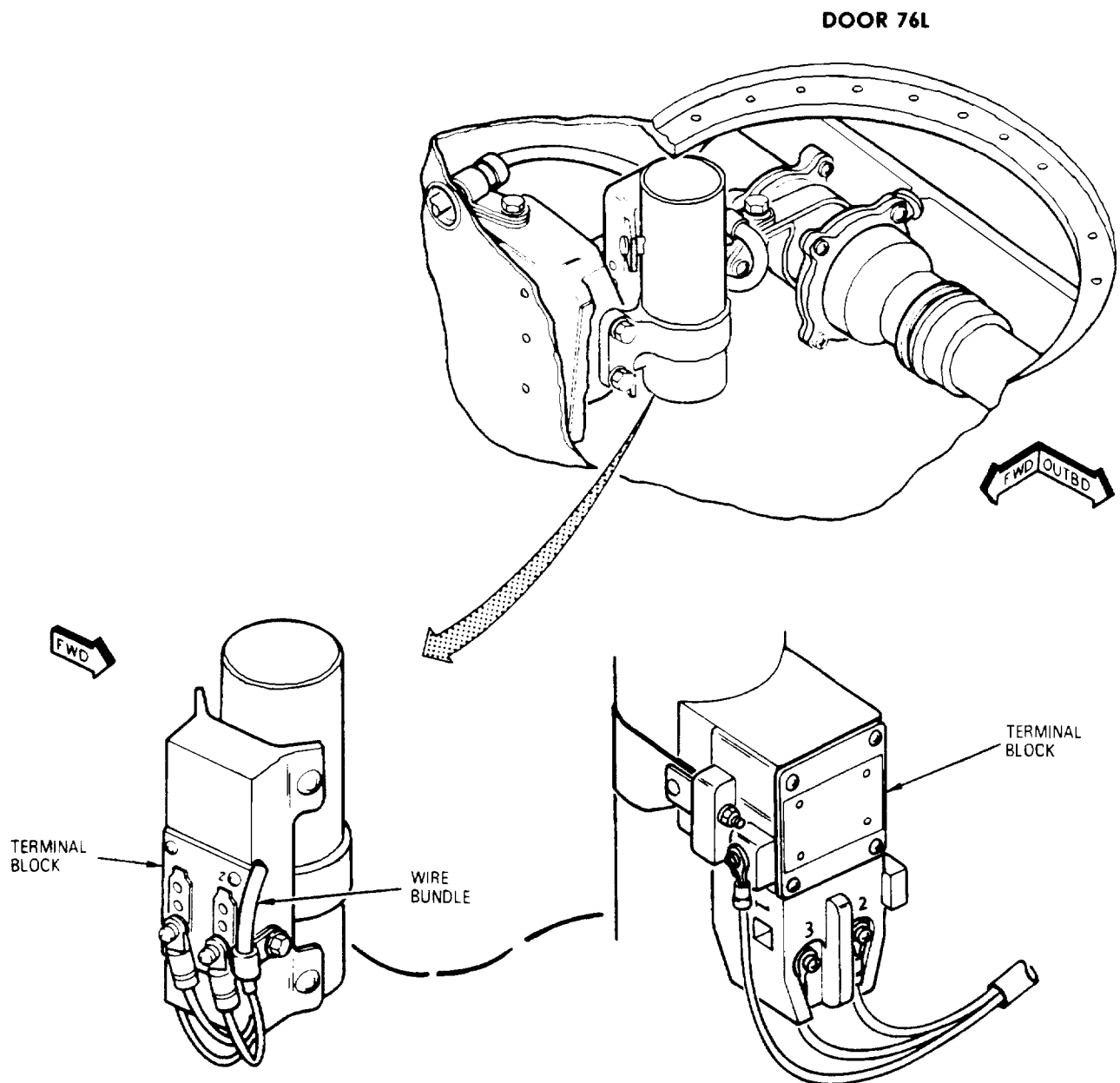


Figure 1. Left Wing Fuel Quantity Transmitters Capacitance Test (Sheet 6)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
RIGHT WING FUEL QUANTITY TRANSMITTER CAPACITANCE TEST
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
Right Wing Fuel Quantity Transmitter Capacitance Test, Figure 1	6
Right Wing Fuel Quantity Transmitter Capacitance Test, Table 1	2

Record of Applicable Technical Directives

None

Table 1. Right Wing Fuel Quantity Transmitter Capacitance Test

System Required Components

All system components installed.

Related Systems Required

Electrical System

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

Part Number or
Type Designation

Nomenclature

77/BN
74D510003-1003
(74D510003-1001)

Multimeter
Fuel - Liquid Oxygen
Gages A/E24T-159
Test Set

74D510012-1001

Fuel/Lox Gaging
Test Set Extension
Cable

Materials Required

None

NOTE

Fuel Quantity Gaging System Schematic may be used while doing this test
(A1-F18AC-460-500, WP012 00).

Malfunction is caused by one of the items listed below:

- Aircraft Wiring
- Right Wing Center Fuel Quantity Transmitter
- Right Wing Inboard Fuel Quantity Transmitter
- Right Wing Outboard Fuel Quantity Transmitter

Table 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Continued)


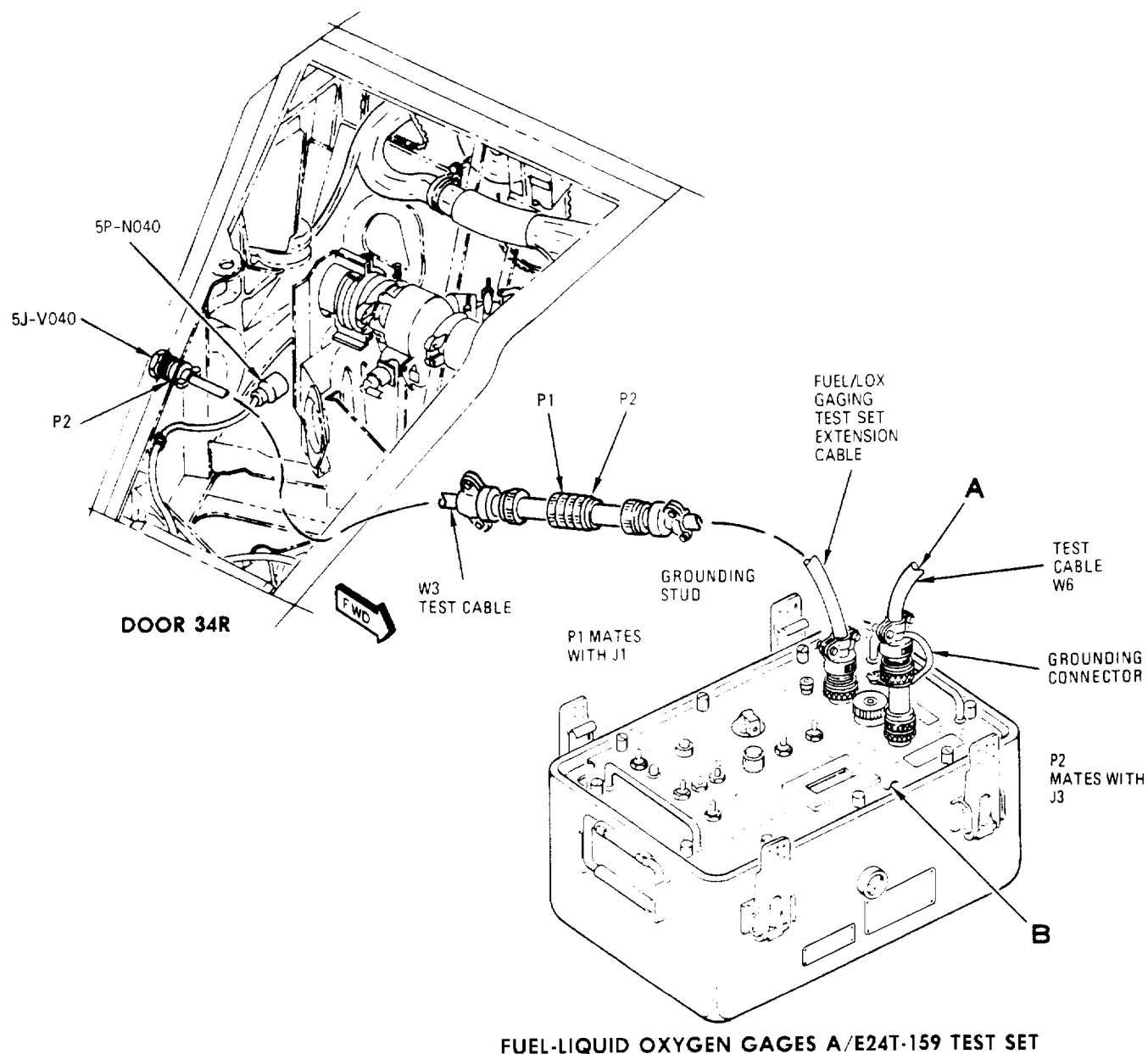
Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. 		
<p>a. Do substeps listed below:</p> <ol style="list-style-type: none"> (1) Refuel aircraft to high level shutoff (A1-F18AC-PCM-000). (2) Remove door 34R (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1). (5) Connect P3 on test cable W6 to service ground jack in forward, nose wheelwell. (6) Connect P2 on test cable W6 to J3 on test set. (7) Connect grounding connector on test cable W6 to GND stud on test set. (8) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set. (9) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W3. (10) Disconnect connector 5P-N040 (door 34R). Connect P2 on test cable W3 to 5J-V040. (11) Set switches on test set as listed below: <ul style="list-style-type: none"> MEASURE/SIMULATE - MEASURE FIXED/VARIABLE - FIXED SENSOR SELECT - RW INBOARD LOW LEVEL WARNING - WET MODE - OFF POWER - OFF 		

Table 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Continued)

Procedure	No	Yes
(12) Turn on external electrical power (A1-F18AC-LMM-000).		
(13) Set test set POWER switch to ON.		
(14) Is test set CAPACITANCE display 5.8 ± 0.5 PICO FARADS?	d	b
b. Set test set SENSOR SELECT switch to RW CENTER. Is test set CAPACITANCE display 4.8 ± 0.5 PICO FARADS?	g	c
c. Set test set SENSOR SELECT switch to RW OUTBOARD. Is test set CAPACITANCE display 2.3 ± 0.5 PICO FARADS?	i	k
d. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect test cable from 5J-V040 (door 34R).		
(4) Remove wing internal access cover (A1-F18AC-460-300, WP168 00).		
(5) Does continuity exist from:		
5J-V040 pin 5 to 5A-V043 terminal T3		
5J-V040 pin 6 to 5A-V043 terminal T2		
5J-V040 pin 7 to 5A-V043 terminal T1?	e	f
e. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step 1	-	-
f. Replace right wing inboard fuel quantity transmitter (A1-F18AC-460-300, WP168 00) and do step 1	-	-
g. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Disconnect test cable from 5J-V040 (door 34R).		
(4) Remove door 76R (A1-F18AC-LMM-010).		
(5) Does continuity exist from:		
5J-V040 pin 8 to 5A-V042 terminal T3		
5J-V040 pin 9 to 5A-V042 terminal T2		
5J-V040 pin 10 to 5A-V042 terminal T1?	e	h
h. Replace right wing center fuel quantity transmitter (A1-F18AC-460-300, WP169 00) and do step 1	-	-

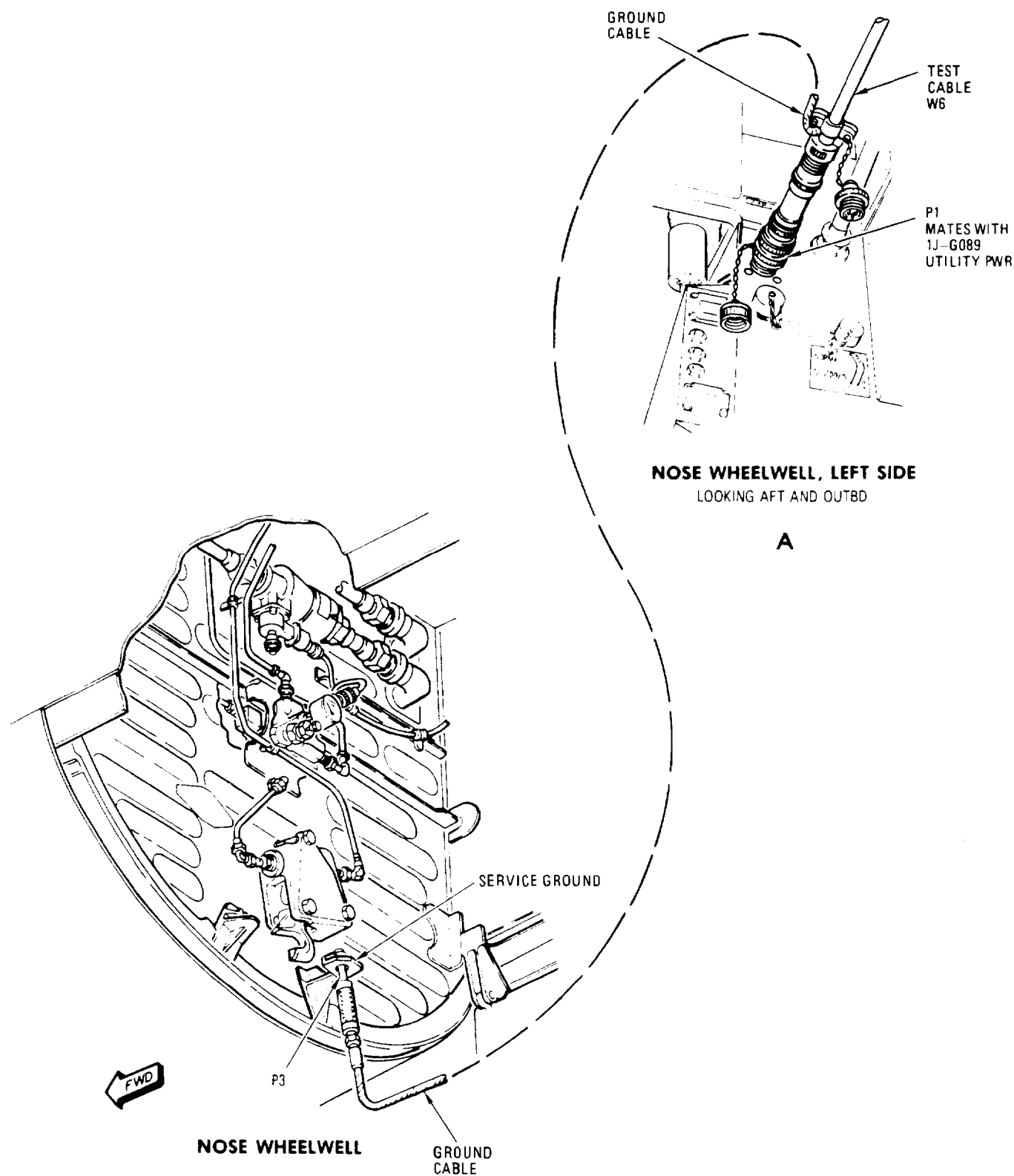
Table 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Continued)

Procedure	No	Yes
i. Do substeps below: (1) Set test set POWER switch to OFF. (2) Turn off external electrical power (A1-F18AC-LMM-000). (3) Disconnect test cable from 5J-V040 (door 34R). (4) Remove door 77R (A1-F18AC-LMM-010). (5) Does continuity exist from: 5J-V040 pin 11 to 5A-V041 terminal T3 5J-V040 pin 12 to 5A-V041 terminal T2 5J-V040 pin 13 to 5A-V041 terminal T1?	e	j
j. Replace right wing outboard fuel quantity transmitter (A1-F18AC-460-300, WP170 00) and do step 1	-	-
k. Do substeps below: (1) Set test set POWER switch to OFF. (2) Open door 14R (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device (door 14R). (5) Does continuity exist from: 5P-F014A pin 32 to 5P-N040 pin 5 5P-F014A pin 32 to 5P-N040 pin 8 5P-F014A pin 32 to 5P-N040 pin 11 5P-F014A pin 33 to 5P-N040 pin 6 5P-F014A pin 33 to 5P-N040 pin 9 5P-F014A pin 33 to 5P-N040 pin 12 5P-F014A pin 34 to 5P-N040 pin 7 5P-F014A pin 34 to 5P-N040 pin 10 5P-F014A pin 34 to 5P-N040 pin 13?	e	l
l. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed: (1) Connector 5P-F014A to J1 on fuel quantity gaging intermediate device (door 14R). (2) Doors 14R, 34R, 76R and 77R (A1-F18AC-LMM-010). (3) Disconnect test cables. (4) Connect 5P-N040 to 5J-V040 (door 34R). (5) Wing internal access cover (A1-F18AC-460-300, WP168 00).		



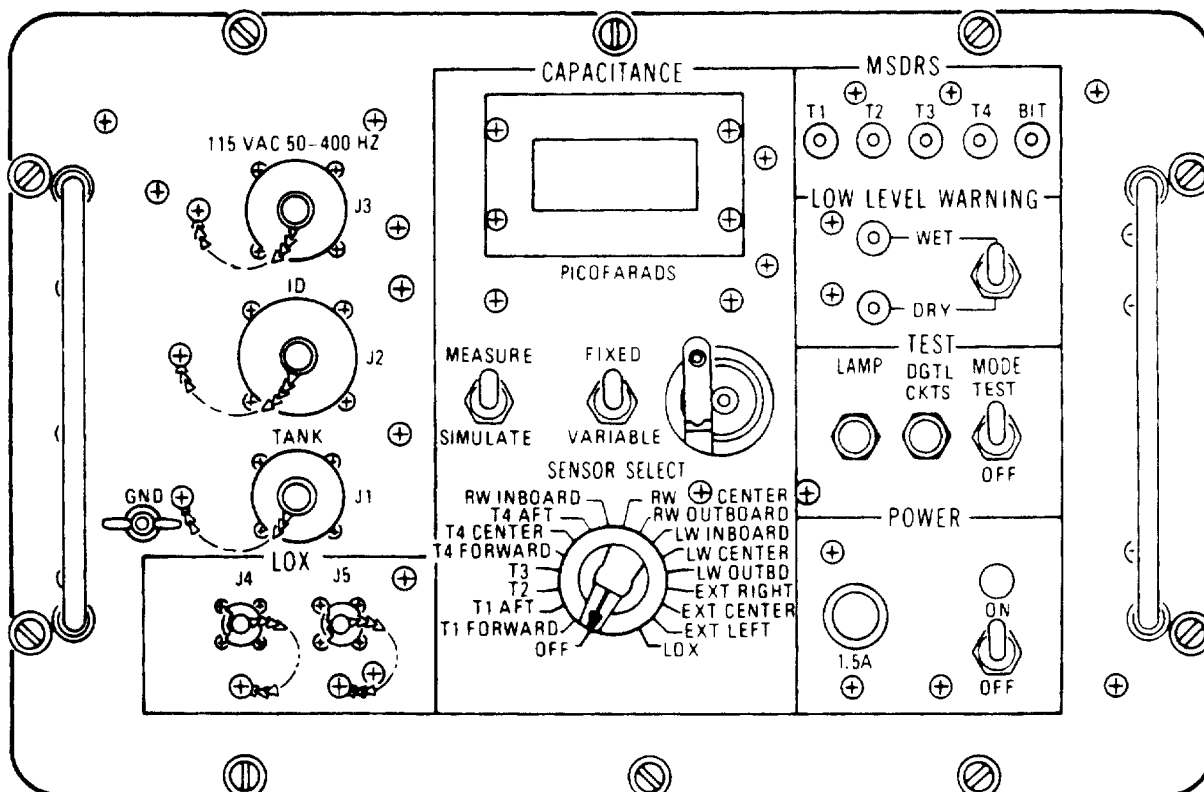
03300101

Figure 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Sheet 1 of 6)



03300102

Figure 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

Figure 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Sheet 3)

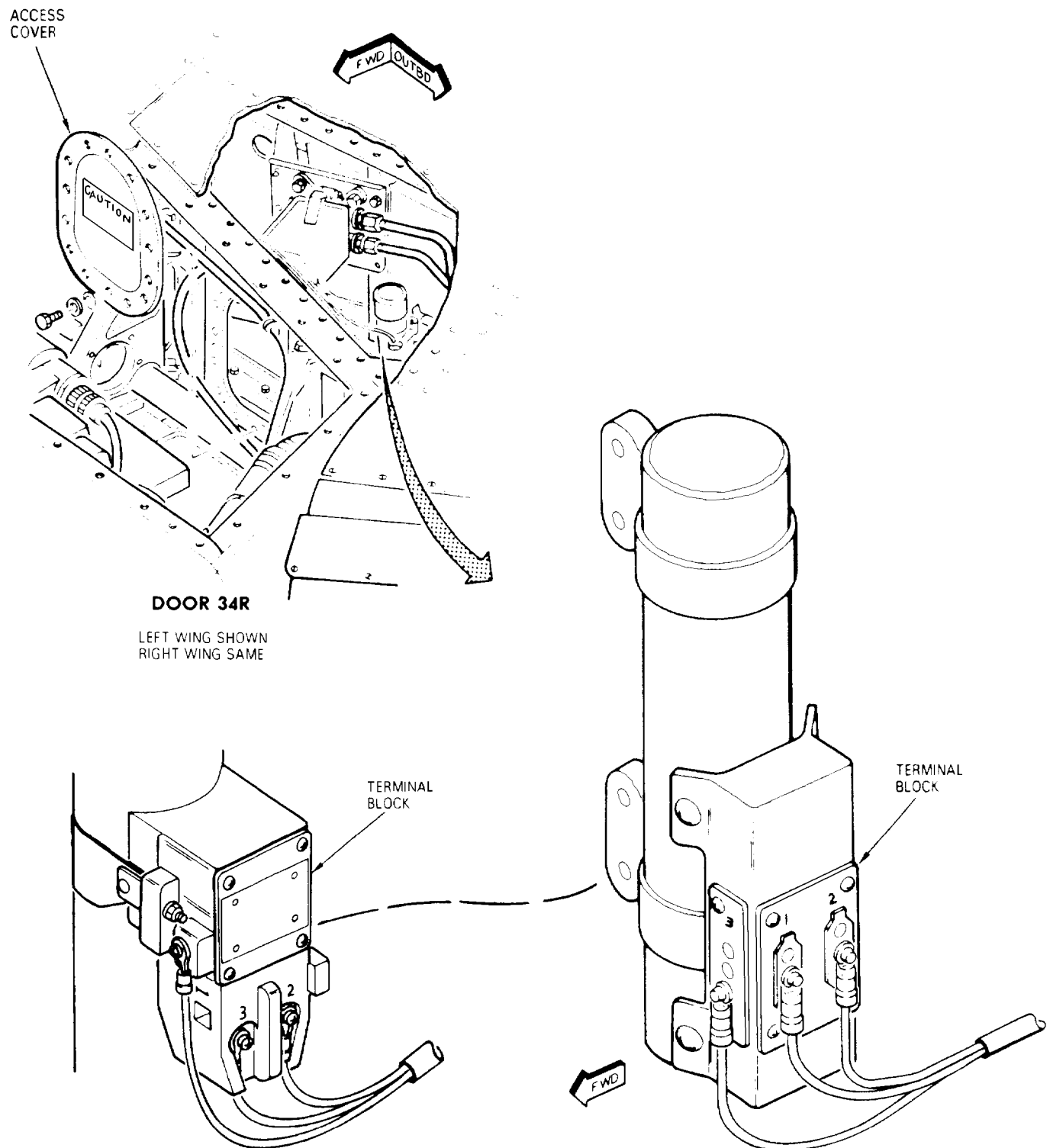
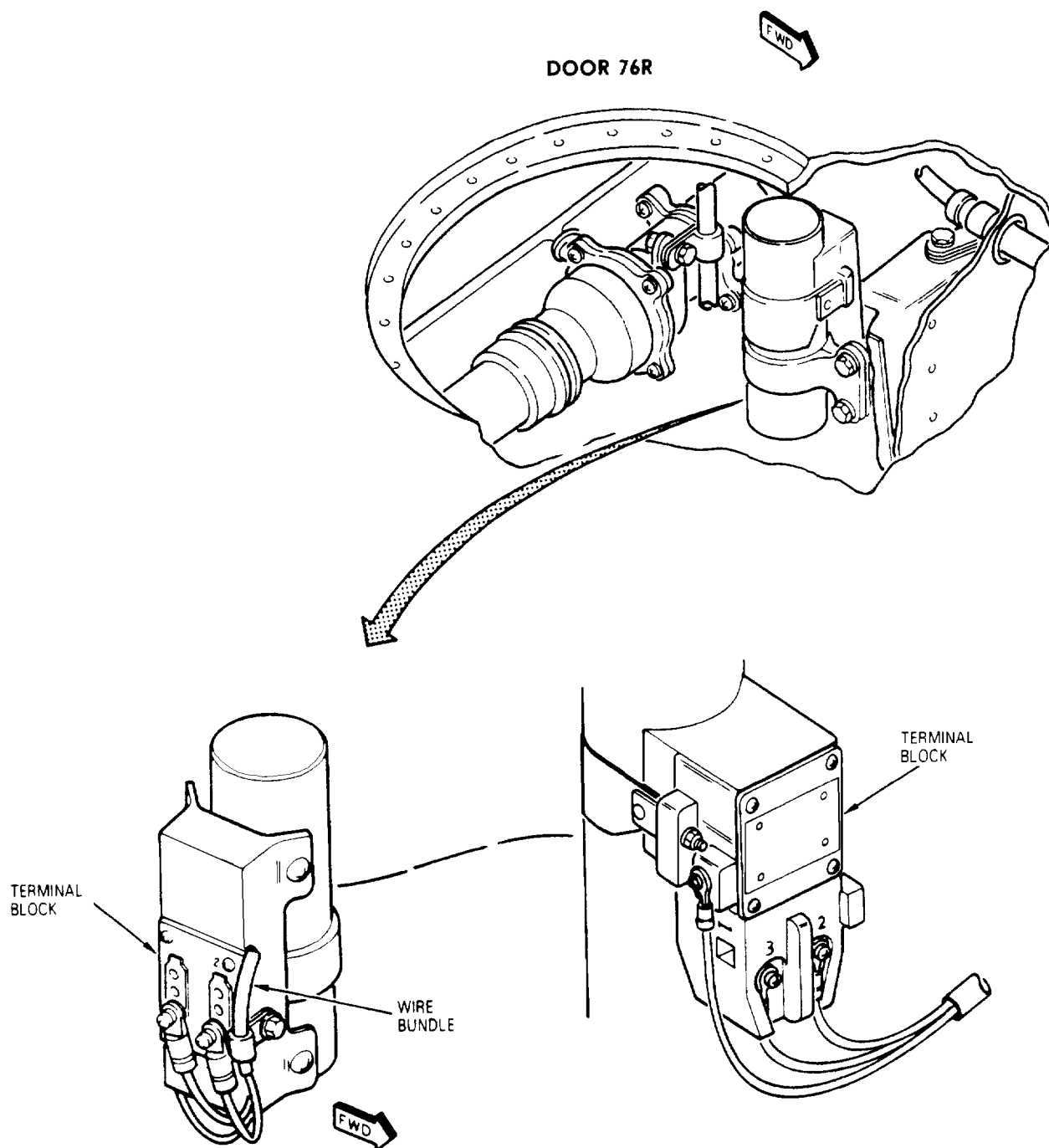
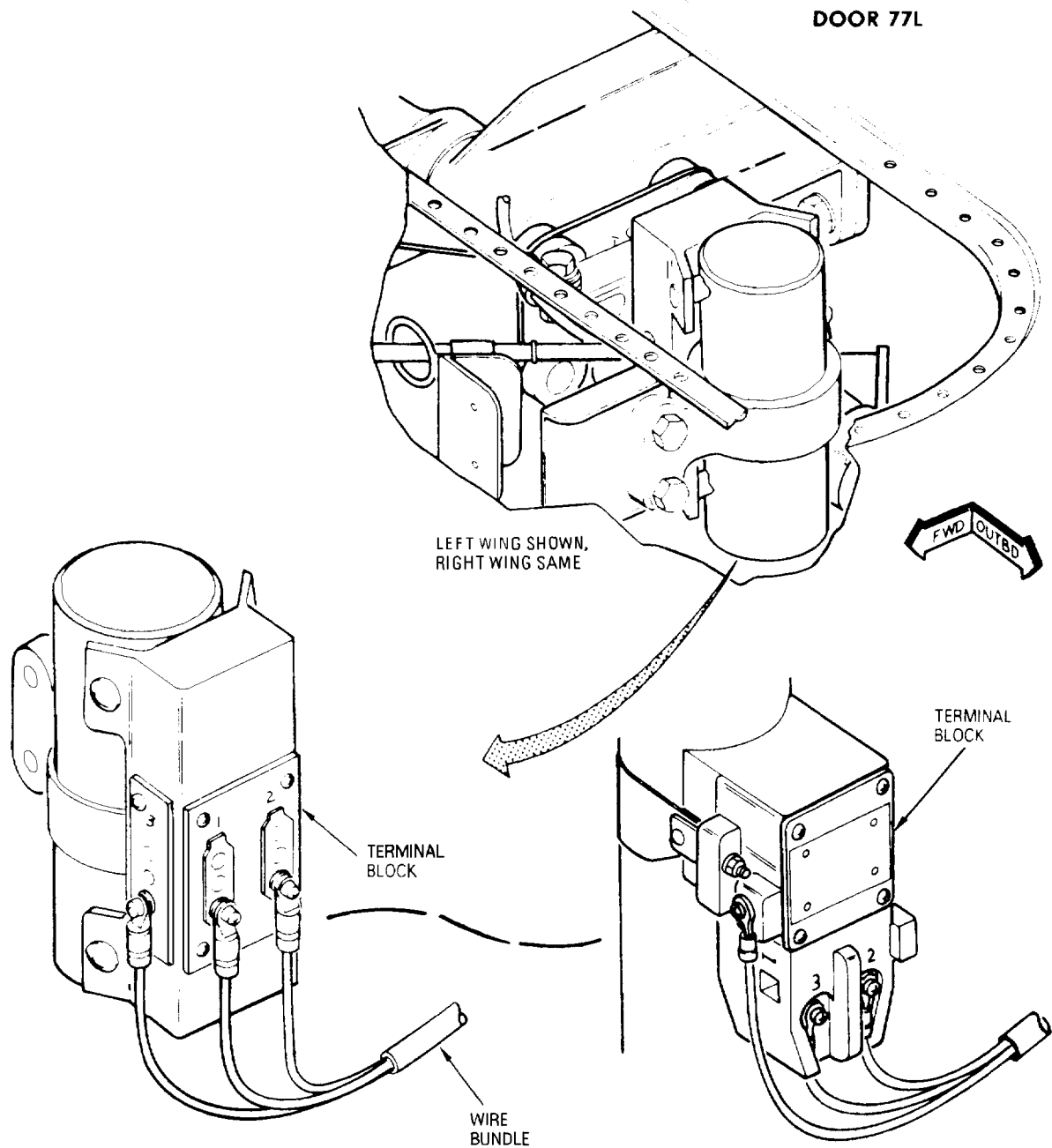


Figure 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Sheet 4)



03300105

Figure 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Sheet 5)



03300106

Figure 1. Right Wing Fuel Quantity Transmitter Capacitance Test (Sheet 6)

THIS PAGE INTENTIONALLY LEFT BLANK.

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
EXTERNAL TANK FUEL QUANTITY TRANSMITTER CAPACITANCE TEST
FUEL QUANTITY GAGING SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000

Alphabetical Index

Subject	Page No.
External Tank Fuel Quantity Transmitter Capacitance Test, Figure 1	6
External Tank Fuel Quantity Transmitter Capacitance Test, Table 1	2

Record of Applicable Technical Directives

None

Table 1. External Tank Fuel Quantity Transmitter Capacitance Test

System Required Components

All system components installed.

Related Systems Required

Electrical System

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

Part Number or
Type Designation

Nomenclature

77/BN
74D510003-1003
(74D510003-1001)

Multimeter
Fuel - Liquid Oxygen
Gages A/E24T-159
Test Set

74D510012-1001

Fuel/Lox Gaging
Test Set Extension
Cable

Materials Required

None

NOTE

Fuel Quantity Gaging System Schematic may be used while doing this test
(A1-F18AC-460-500, WP012 00).

Malfunction is caused by one of the items listed below:

- Aircraft Wiring
- External Fuel Tank Cable Assembly
- External Tank Fuel Quantity Transmitter
- Right Wing Outboard Fuel Quantity Transmitter

Table 1. External Tank Fuel Quantity Transmitter Capacitance Test (Continued)


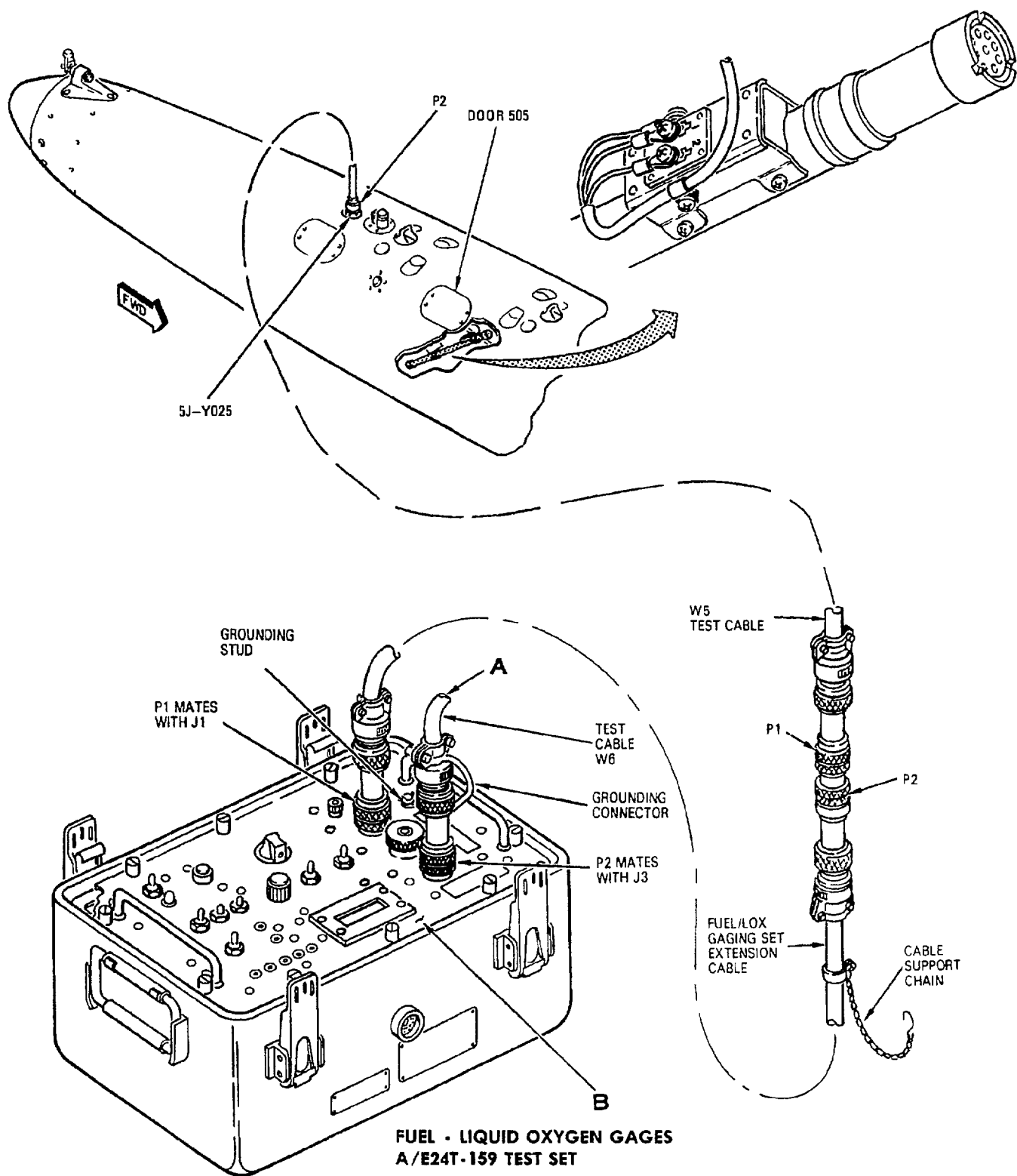
Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft or equipment, do not turn on electrical power until test set is grounded to aircraft.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps listed below:		
(1) Refuel external tank(s) to high level shutoff (A1-F18AC-PCM-000).		
(2) Open pylon access door 502 (wing pylon) or door 510 (centerline pylon) (A1-F18AC-LMM-010).		
(3) Turn off external electrical power (A1-F18AC-LMM-000).		
(4) Connect P1 of test cable W6 to 1J-G089 UTILITY POWER receptacle in the nose wheelwell, left side (fig 1).		
(5) Connect P3 on test cable W6 to service ground jack in forward, nose wheelwell.		
(6) Connect P2 on test cable W6 to J3 on test set.		
(7) Connect grounding connector on test cable W6 to GND stud on test set.		
(8) Connect P1 on fuel/lox gaging test set extension cable to J1 on test set.		
(9) Connect P2 on fuel/lox gaging test set extension cable to P1 on test cable W5.		
(10) Disconnect connector 5P-Y025 from external tank. Connect P2 on test cable W5 to 5J-Y025.		

Table 1. External Tank Fuel Quantity Transmitter Capacitance Test (Continued)

Procedure	No	Yes
(11) Set switches on test set as listed below: MEASURE/SIMULATE - MEASURE FIXED/VARIABLE- FIXED SENSOR SELECT - EXT LEFT, EXT RIGHT, or EXT CENTER LOW LEVEL WARNING - WET MODE - OFF POWER- OFF		
(12) Turn on external electrical power (A1-F18AC-LMM-000).		
(13) Set test set POWER switch to ON.		
(14) On elliptical external fuel tank, is test set CAPACITANCE display 42.9 ± 2.0 PICO FARADS?	b	c
On cylindrical external fuel tank, is test set CAPACITANCE display 45.0 ± 2.0 PICO FARADS?	b	c
b. Do substeps below:		
(1) Set test set POWER switch to OFF.		
(2) Turn off external electrical power (A1-F18AC-LMM-000).		
(3) Observe applicable fuel tank maintenance precautions (A1-F18AC-460-300, WP013 00).		
(4) Defuel external tank (A1-F18AC-PCM-000).		
(5) Drain residual fuel (A1-F18AC-PCM-000).		
(6) Remove doors 505 and 506 (elliptical tank) or 516 and 517 (cylindrical tank) (A1-F18AC-LMM-010).		
(7) Purge tank with exhaust blower until a safe indication is displayed on combustible gas indicator (A1-F18AC-460-300, WP009 01). Refer to NAVAIR 01-1A-35 for general purging instructions.		
(8) Disconnect test cable from 5J-Y025.		
(9) Does continuity exist from: 5J-Y025 pin 19 to 5A-Y062 terminal T1 5J-Y025 pin 20 to 5A-Y062 terminal T2 5J-Y025 pin 21 to 5A-Y062 terminal T3?	d	e

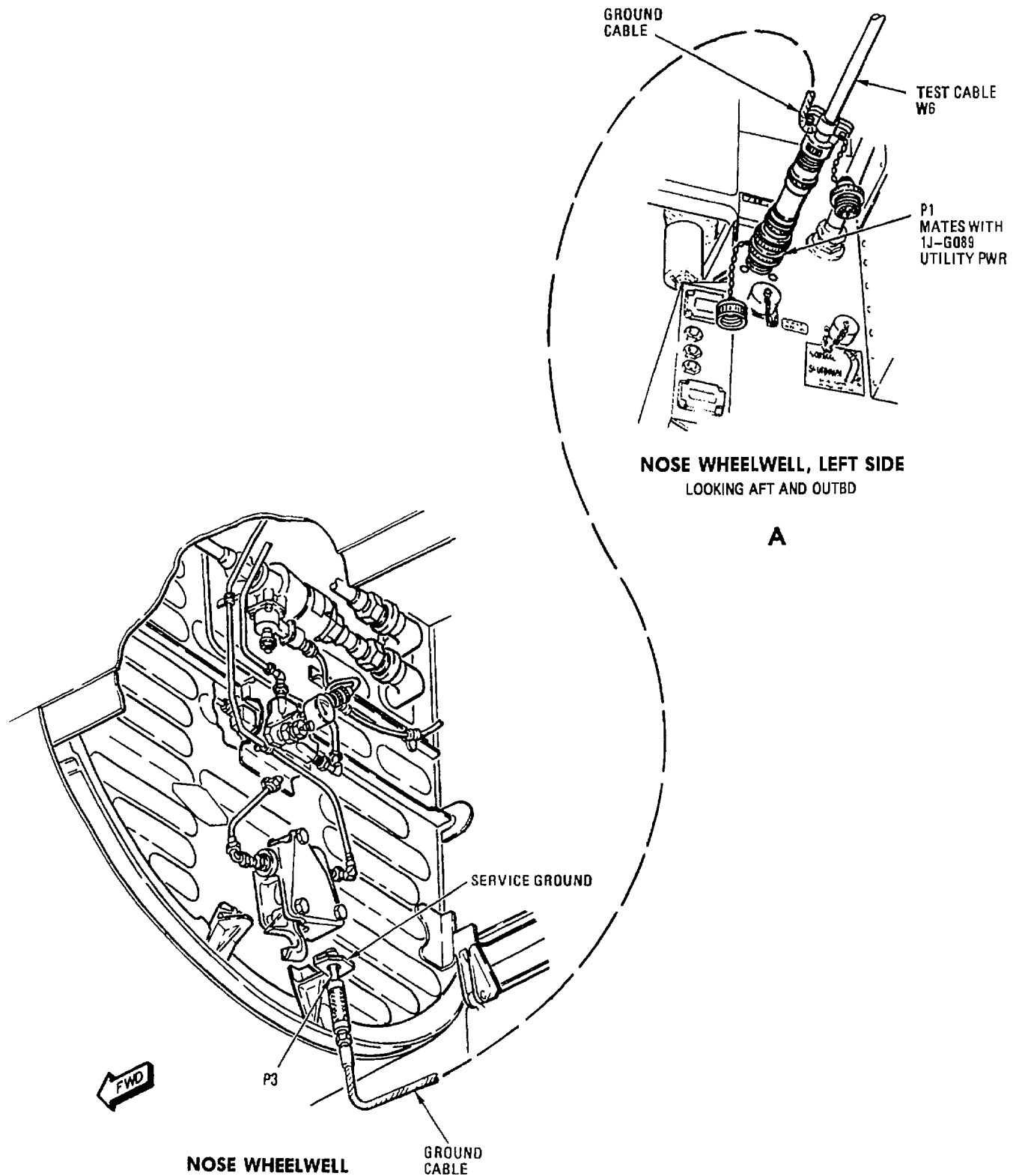
Table 1. External Tank Fuel Quantity Transmitter Capacitance Test (Continued)

Procedure	No	Yes
<p>c. Do substeps below:</p> <p>(1) Set test set POWER switch to OFF.</p> <p>(2) Open door 14R (A1-F18AC-LMM-010).</p> <p>(3) Turn off external electrical power (A1-F18AC-LMM-000).</p> <p>(4) Disconnect 5P-F014A from J1 on fuel quantity gaging intermediate device (door 14R).</p> <p>(5) Does continuity exist from:</p> <p>(a) On left external fuel tank:</p> <p>5P-F014A pin 29 to 5P-Y025 pin 21 5P-F014A pin 30 to 5P-Y025 pin 20 5P-F014A pin 31 to 5P-Y025 pin 19</p> <p>(b) On right external fuel tank:</p> <p>5P-F014A pin 26 to 5P-Y025 pin 21 5P-F014A pin 27 to 5P-Y025 pin 20 5P-F014A pin 28 to 5P-Y025 pin 19</p> <p>(c) On centerline external fuel tank:</p> <p>5P-F014A pin 23 to 5P-Y025 pin 21 5P-F014A pin 24 to 5P-Y025 pin 20 5P-F014A pin 25 to 5P-Y025 pin 19?</p>	f	g
d. Malfunction has been isolated to external fuel tank cable assembly. Replace external fuel tank (A1-F18AC-LWS-000) and do step g	-	-
e. Replace external tank fuel quantity transmitter (A1-F18AC-460-300, WP096 00) and do step g	-	-
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step g	-	-
g. If disconnected, removed, or opened during this procedure, make sure the items below are connected, installed, or closed:		
(1) Connectors 5P-Y025 and 5P-F014A		
(2) Disconnect test cables		
(3) Close doors 14R, 502, 510, 505, 506, 516 and 517	-	-



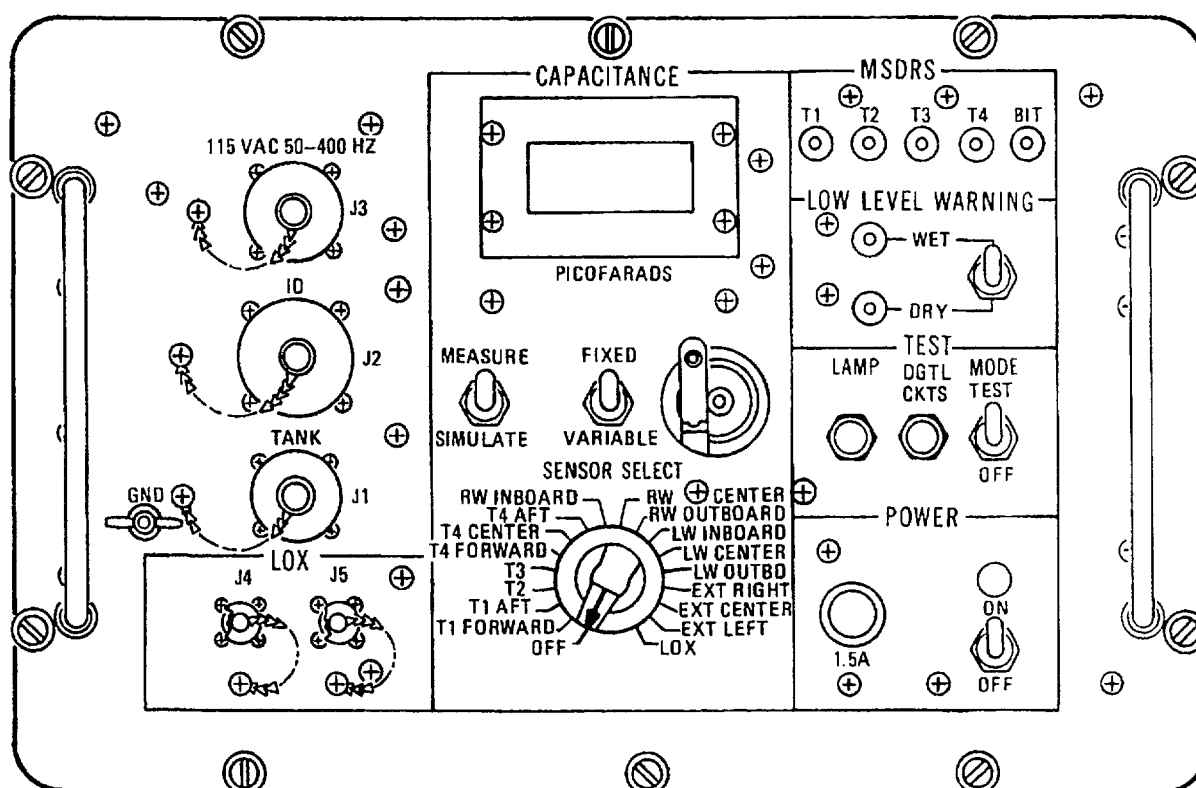
03400101

Figure 1. External Tank Fuel Quantity Transmitter Capacitance Test (Sheet 1 of 3)



03400102

Figure 1. External Tank Fuel Quantity Transmitter Capacitance Test (Sheet 2)



FUEL-LIQUID OXYGEN GAGES A/E24T-159 TEST SET

B

Figure 1. External Tank Fuel Quantity Transmitter Capacitance Test (Sheet 3)

ORGANIZATIONAL MAINTENANCE**TROUBLESHOOTING****CG CONTROL SYSTEM**

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000
Wiring Diagrams	A1-F18A()-WDM-000

Alphabetical Index

Subject	Page No.
CG Caution Displayed Inflight - 161520 THRU 161761 BEFORE F/A-18 AFC 48 AND 53, Table 1	2
CG Caution Displayed Inflight - 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48, Table 3	10
CG Caution Displayed Inflight - 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, Table 4	14
CG Caution Not Displayed When Selecting BIT, Table 2	6
CG System Test Component Locator, Figure 3	22
F/A-18A - Fuel Transfer Limits, Figure 1	20
F/A-18B - Fuel Transfer Limits, Figure 2	21

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	—	Alternating Current Bus Isolation (ECP MDA- F/A-18-00121)	1 Dec 86	—
F/A-18 AFC 53	—	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve, and Raised Inverted Baffle (ECP MDA-F/A-18-00055C1)	1 Dec 86	—
F/A-18 AFC 74	—	Installation of Aircraft Wiring For Additional Weapons Capability (ECP MDA- F/A-18-00090)	15 Jan 92	—
F/A-18 AFC 39	—	No. 1 Fuel Tank Interconnect Valve Replace- ment and Fuel Sequencing Modification (ECP MDA-F/A-18-00072C1)	1 Dec 86	—

**Table 1. CG Caution Displayed Inflight - 161520 THRU 161761 BEFORE
F/A-18 AFC 48 AND 53**

Support Equipment Required

NOTE

Alternate item type designation or part numbers are listed in parentheses.

**Part Number or
Type Designation**

Nomenclature

260-6XLP
(AN/USM-311)

Multimeter

Materials Required

None

NOTE


CG Control System Schematic (A1-F18AC-460-500, WP014 02), may be used while doing this procedure.

For component location, refer to figure 1, WP014 00 and figure 1, WP024 01.

Malfunction is caused by one of the items listed below:

Aircraft Wiring
Fuel Quantity Gaging Intermediate Device
No. 1 Fuel Tank Transfer Control Valve
No. 1 Fuel Tank Transfer Jet Ejector
No. 1 Fuel Tank Fuel Transfer Shutoff Valve and Pilot Valve
No. 4 Fuel Tank Transfer Jet Ejector
No. 4 Fuel Tank Transfer Shutoff Valve and Pilot Valve
No. 7 Circuit Breaker/Relay Panel Assembly
No. 8 Circuit Breaker/Relay Panel Assembly

**Table 1. CG Caution Displayed Inflight - 161520 THRU 161761 BEFORE
F/A-18 AFC 48 AND 53 (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C159F</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>If this table is used to troubleshoot a C.G. Caution displayed inflight with left engine off, high state of transfer fuel and nose up attitude, no further troubleshooting is required if the malfunction is not duplicated after the test. The malfunction is inherent to the fuel system design.</p>		
a. Do substeps below:		
(1) Apply external electrical power (A1-F18AC-LMM-000).		
(2) Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).		
(3) Do a fuel quantity gaging BIT test, WP024 00. Was CG caution displayed?	b	c
b. Do Table 2. CG Caution Not Displayed When Selecting BIT	-	-
c. Do substeps below:		
(1) On F/A-18A, remove door 18 (A1-F18AC-LMM-010).		
(2) On F/A-18B, remove door CPJ (A1-F18AC-LMM-010).		
(3) Turn off external electrical power (A1-F18AC-LMM-000).		
(4) Disconnect connector 5P-E035.		
(5) Open door 10L (A1-F18AC-LMM-010).		

**Table 1. CG Caution Displayed Inflight - 161520 THRU 161761 BEFORE
F/A-18 AFC 48 AND 53 (Continued)**

Procedure	No	Yes
(6) On no. 8 circuit breaker/relay panel assembly (door 10L), open FUEL LOW LVL WRN circuit breaker (zone A5).		
(7) Turn on external electrical power (A1-F18AC-LMM-000).		
(8) On FUEL QTY indicator, set and hold FUEL QTY selector in BIT. Does 28vdc exist at 5P-E035, pin 13?	d	e
d. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057D (door 10L).		
(3) Does continuity exist from:		
5P-E035 pin 11 to ground		
5P-E035 pin 12 to ground		
5P-E035 pin 13 to 52P-C057D pin 40?	f	g
e. To verify transfer piping, do a Transfer Leak Test, table 1 (WP012 02). If aircraft passes leak test, continue to step k to verify tanks 1 and 4 are transferring and that tank 1 will stop transferring	-	-
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step p	-	-
g. Do substeps below:		
(1) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159F.		
(2) Does continuity exist from:		
52P-C057D pin 55 to 52P-C159F pin 31		
52P-C057D pin 37 to 52P-C159F pin 23?	f	h
h. On no. 8 circuit breaker/relay panel assembly, does continuity exist from:		
52J-C159F pin 23 to 52J-C159F pin 31?	i	j
i. Isolate between the 5K-C052 fuel low level relay no. 2 and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step p	-	-
j. Isolate between the 5K-C159 tank 1 transfer time delay relay, 5K-C158 tank 1 transfer control relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step p	-	-

**Table 1. CG Caution Displayed Inflight - 161520 THRU 161761 BEFORE
F/A-18 AFC 48 AND 53 (Continued)**

Procedure	No	Yes
<p>k. Do substeps below:</p> <p>(1) If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 TOTAL LBS.</p> <p>(2) Prepare aircraft for engine operation (A1-F18AC-LMM-000).</p> <p>(3) Operate engines at ground IDLE (A1-F18AC-LMM-000).</p> <p>(4) Monitor cockpit FUEL QTY indicator, RIGHT counter in TRANS setting (tank 4). Is RIGHT counter fuel amount decreasing at a minimum rate of 400 lb per minute?</p>	l	m
<p>l. Do substeps below:</p> <p>(1) Shut down engines (A1-F18AC-LMM-000).</p> <p>(2) Remove no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00). If ejector is clogged or damaged, replace ejector (A1-F18AC-460-300, WP117 00). If ejector is good reinstall ejector. Replace no. 4 fuel tank transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP116 00) and do step p</p>	-	-
<p>m. Monitor LEFT (tank 1) and RIGHT (tank 4) counter in TRANS setting. Is tank 1 transferring per figure 1 (F/A-18A) or figure 2 (F/A-18B)?</p>	n	o
<p>n. Do table 4. No. 1 fuel tank not transferring, WP013 01.</p>		
<p>o. Monitor LEFT (tank 1) and RIGHT (tank 4) counter in TRANS setting. If tank 1 does not stop transfer per figure 1 (F/A-18A) or figure 2 (F/A-18B) malfunction has been isolated to one of the items below:</p> <p>(1) Fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00).</p> <p>(2) No. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01) and no. 1 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP105 00)</p>	-	-
<p>p. If disconnected opened or removed during this procedure, make sure the items below are installed, connected, or closed:</p> <p>(1) Connectors 5P-E035, 52P-C057D, 52P-C159F</p> <p>(2) Close FUEL LOW LVL WRN circuit breaker (door 10L).</p> <p>(3) Doors 10L, 18, CPJ</p>	-	-

Table 2. CG Caution Not Displayed When Selecting BIT


Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
CG Control System Schematic (A1-F18AC-460-500, WP014 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Fuel Quantity Gaging Intermediate Device No. 7 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
<div></div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p>52P-C057E</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 2. CG Caution Not Displayed When Selecting BIT (Continued)

Procedure	No	Yes
<p>a. Do substeps below:</p> <p>(1) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(2) Open door 10L (A1-F18AC-LMM-010).</p> <p>(3) On no. 7 circuit breaker/relay panel assembly, is <input type="checkbox"/> 1 TANK 1 TRANSFER or <input type="checkbox"/> 2 FUEL TRANSFER circuit breaker (zone C9) open?</p>	b	c
<p>b. Do substeps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) On Signal Data Recorder RO-508/ASM-612, disconnect 85P-F001A.</p> <p>(3) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(4) Set and hold FUEL QTY selector knob to BIT. Does a ground exist at 85P-F001A, pin 68?</p>	d	e
<p>c. Do substeps below:</p> <p>(1) Close circuit breaker.</p> <p>(2) Turn on electrical power (A1-F18AC-LMM-000).</p> <p>(3) If circuit breaker opens, do table 15, WP013 00.</p>		
<p>d. Does a ground exist at 85P-F001A, pin 61?</p>	f	e
<p>e. Do substeps below:</p> <p>(1) Open door 14R (A1-F18AC-LMM-010).</p> <p>(2) Turn off electrical power (A1-F18AC-LMM-000).</p> <p>(3) Disconnect 5P-F014A from fuel quantity gaging intermediate device.</p> <p>(4) <input type="checkbox"/> 3 Disconnect 5P-F014B from fuel quantity gaging intermediate device.</p> <p>(5) Does continuity exist from:</p> <p>5P-F014A pin 18 to 85P-F001A pin 61</p> <p>5P-F014A pin 14 to 85P-F001A pin 68</p> <p><input type="checkbox"/> 3 5P-F014B pin 38 to 5P-F014B pin 41?</p>	h	q

Table 2. CG Caution Not Displayed When Selecting BIT (Continued)

Procedure	No	Yes
f. Do substeps below:		
(1) Open door 13R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) On Control-Converter C-10382/A, disconnect 82P-F001A.		
(4) Turn on electrical power (A1-F18AC-LMM-000).		
(5) Set and hold FUEL QTY selector knob to BIT. Does a ground exist at 82P-F001A, pin 120?	i	j
g. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00), and do step p	-	-
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000), and do step p	-	-
i. Does a ground exist at 82P-F001A, pin 121?	k	l
j. Do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Disconnect 5P-F014B from fuel quantity gaging intermediate device.		
(3) Does continuity exist from 5P-F014B, pin 25 to 82P-F001A, pin 120?	h	g
k. Do substeps below:		
(1) Open door 10L (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 52P-C057E from no. 7 circuit breaker/relay panel assembly.		
(4) Does continuity exist from 52P-C057E, pin 73 to 52P-F100A, pin 121?	h	m
l. Do a Signal Data Recording Set AN/ASM-612 test (A1-F18AC-580-200, WP003 00), and do step p	-	-
m. Do substeps below:		
(1) <input type="checkbox"/> 4 Disconnect 52P-C057C from no. 7 circuit breaker/relay panel assembly.		
(2) <input type="checkbox"/> 5 Disconnect 52P-C057F from no. 7 circuit breaker/relay panel assembly.		

Table 2. CG Caution Not Displayed When Selecting BIT (Continued)

Procedure	No	Yes
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) <input type="checkbox"/> 4 Set and hold FUEL QTY selector knob to BIT. Does a ground exist at 52P-C057C, pin W?	n	o
(5) <input type="checkbox"/> 5 Set and hold FUEL QTY selector knob to BIT. Does a ground exist at 52P-C057F, pin 85?	n	o
n. Do substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 5P-F014B from fuel quantity gaging intermediate device.		
(4) <input type="checkbox"/> 4 Does continuity exist from 5P-F014B, pin 36 to 52P-C057C, pin W?	h	g
(5) <input type="checkbox"/> 5 Does continuity exist from 5P-F014B, pin 36 to 52P-C057F, pin 85?	h	g
o. Isolate between 5K-C158 tank 1 transfer control relay and no. 7 circuit breaker/relay panel assembly, (A1-F18AC-420-300, WP027 00) and do step p	-	-
p. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Connectors 5P-F014A, 5P-F014B, 52P-C057C, 52P-C057E, 62P-C057F, 82P-F001A, 83P-F002A, 83P-F002C, and 85P-F001A		
(2) Doors 10L, 13R and 14R	-	-
q. Do substeps below:		
(1) Disconnect 83P-F002A and 83P-F002C from Digital Data Computer No. 2.		
(2) Does continuity exist from:		
83P-F002A pin 31 to 83P-F002C pin 11		
83P-F002A pin 32 to 83P-F002C pin 10?	h	g
LEGEND		
<input type="checkbox"/> 1 161520 THRU 161761 BEFORE F/A-18 AFC 39 AND 53.		
<input type="checkbox"/> 2 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 39 AND 53.		
<input type="checkbox"/> 3 F/A-18A.		
<input type="checkbox"/> 4 161520 THRU 161987 BEFORE F/A-18 AFC 74.		
<input type="checkbox"/> 5 162394 AND UP; ALSO 161520 THRU 161987 AFTER F/A-18 AFC 74.		

Table 3. CG Caution Displayed Inflight - 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48

Support Equipment Required	
NOTE	
Alternate item type designation or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
77/BN	Multimeter
Materials Required	
None	
NOTE	
CG Control System Schematic (A1-F18AC-460-500, WP014 04), may be used while doing this procedure.	
For component location, refer to figure 1, WP014 00 and figure 1, WP024 01.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
Fuel Quantity Gaging Intermediate Device	
No. 1 Fuel Tank Transfer Control Valve	
No. 1 Fuel Tank Transfer Jet Ejector	
No. 1 Fuel Tank Fuel Transfer Shutoff Valve and Pilot Valve	
No. 4 Fuel Tank Transfer Control Valve	
No. 4 Fuel Tank Transfer Jet Ejector	
No. 4 Fuel Tank Transfer Shutoff Valve and Pilot Valve	
No. 7 Circuit Breaker/Relay Panel Assembly	
No. 8 Circuit Breaker/Relay Panel Assembly	

Table 3. CG Caution Displayed Inflight - 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts) do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>To prevent damage to aircraft wiring or equipment, make sure multimeter leads/jumper wires are installed on correct pins. When electrical power is off, 24vdc battery voltage exists on some pins of connectors listed below:</p> <p style="text-align: center;">52P-C159F</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>If this table is used to troubleshoot a C.G. Caution displayed inflight with left engine off, high state of transfer fuel and nose up attitude, no further troubleshooting is required if the malfunction is not duplicated after the test. The malfunction is inherent to the fuel system design.</p> </div>		
a. Do substeps below:		
(1) Apply external electrical power (A1-F18AC-LMM-000).		
(2) Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).		
(3) Do a fuel quantity gaging BIT test, table 1 (WP024 00). Was CG caution displayed?	b	c
b. Do Table 2. CG Caution Not Displayed When Selecting BIT	-	-
c. Do substeps below:		
(1) On F/A-18A, remove door 18 (A1-F18AC-LMM-010).		
(2) On F/A-18B, remove door CPJ (A1-F18AC-LMM-010).		
(3) Turn off external electrical power (A1-F18AC-LMM-000).		
(4) Disconnect connector 5P-E035.		
(5) Open door 10L (A1-F18AC-LMM-010).		
(6) On no. 8 circuit breaker/relay panel assembly (door 10L), open FUEL LOW LVL WRN circuit breaker (zone A5).		
(7) Turn on external electrical power (A1-F18AC-LMM-000).		
(8) On FUEL QTY indicator, set and hold FUEL QTY selector in BIT. Does 28vdc exist at 5P-E035, pin 13?	d	e

Table 3. CG Caution Displayed Inflight - 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
d. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057C (door 10L).		
(3) Does continuity exist from:		
5P-E035 pin 11 to ground		
5P-E035 pin 12 to ground		
5P-E035 pin 13 to 52P-C057C pin E?	f	g
e. Turn off external electrical power (A1-F18AC-LMM-000) and connect 5P-E035. To verify transfer piping, do a Transfer Leak Test, (WP012 02). If aircraft passes leak test, continue to step m	-	-
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step r	-	-
g. Do substeps below:		
(1) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159F.		
(2) Does continuity exist from:		
52J-C159F pin 23 to 52J-C159F pin 31?	h	i
h. Isolate between the 5K-C052 fuel low level relay no. 2 and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step r	-	-
i. Do substeps below:		
(1) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057D (door 10L).		
(2) Does continuity exist from:		
52P-C057D pin 55 to 52P-C159F pin 31		
52P-C057D pin 37 to 52P-C159F pin 23?	f	j
j. Does continuity exist from:		
52J-C057D pin 55 to 52J-C057C pin E?	k	l
k. Isolate between 5K-C161 negative G relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step r	-	-
l. Isolate between the 5K-C159 tank 1 transfer time delay relay, 5K-C158 tank 1 transfer control relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step r	-	-
m. Do substeps below:		
(1) If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 lb.		
(2) Prepare aircraft for engine operation (A1-F18AC-LMM-000).		

Table 3. CG Caution Displayed Inflight - 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
<p>(3) On fuel system test set, set switches as listed below:</p> <p>S1 - WING XFER S2 - FUS XFER S5 - CLOSED S6 - OPEN S7 - WING S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL S12 - OFF S13 - NORM S14 - ON S15 - ON CB1 - closed D3 - FUEL INDICATOR - Selector knob to TRANS</p> <p>(4) Open door 8 (A1-F18AC-LMM-010).</p> <p>(5) Operate engine at ground IDLE (A1-F18AC-LMM-000).</p> <p>(6) On FUEL CHECK PANEL (door 8), set and hold TK INTCON V CHK switch to CHK.</p> <p>(7) Does TK 1 V POS light come on?</p> <p>n. Do table 7, WP013 01, then do step r</p> <p>o. Monitor cockpit FUEL QTY indicator, RIGHT counter in TRANS setting (tank 4). Is RIGHT counter fuel amount decreasing at a minimum rate of 400 lb per minute?</p> <p>p. Do substeps below:</p> <p>(1) Shut down engines (A1-F18AC-LMM-000).</p> <p>(2) Remove no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00). If ejector is clogged or damaged, replace ejector (A1-F18AC-460-300, WP117 00). If ejector is good, reinstall ejector. Replace no. 4 fuel tank transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP116 00) and no. 4 fuel tank transfer control valve (A1-F18AC-460-300, WP116 03)</p> <p>q. Do substeps below:</p> <p>(1) Monitor LEFT (tank 1) and RIGHT (tank 4) counters in TRANS setting.</p> <p>(2) Monitor TANK 1 OFF light.</p> <p>(3) Record LEFT and RIGHT counter amounts at the time when the TANK 1 light comes on and goes off. Allow TANK 1 light to cycle on and off several times.</p> <p>(4) Shut down engines (A1-F18AC-LMM-000).</p> <p>(5) Compare tank 1 and tank 4 recorded amounts with fig.1 (F/A-18A) or fig. 2 (F/A-18B).</p>	<p>n</p> <p>-</p> <p>p</p> <p>-</p> <p>-</p>	<p>o</p> <p>-</p> <p>q</p> <p>-</p> <p>-</p>


Table 3. CG Caution Displayed Inflight - 161924 THRU 161987, ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 (Continued)

Procedure	No	Yes
(6) Do applicable substeps below:		
(a) If no. 1 fuel tank does not transfer, do Table 4, WP013 01.		
(b) If no. 1 fuel tank transfers, but does stop transfer, or if tanks 1 and 4 do not deplete per the CG control range, the malfunction has been isolated to one of the following items: Fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) or no. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01) and no. 1 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP105 00)	-	-
r. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Connectors 5P-E035, 52P-C057C, 52P-C057D, 52P-C159F		
(2) FUEL LOW LVL WRN circuit breaker (door 10L)		
(3) Doors 8, 10L, 18, CPJ	-	-

Table 4. CG Caution Displayed Inflight - 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
CG Control System Schematic (A1-F18AC-460-500, WP014 05), may be used while doing this procedure.	
For component location, refer to figure 1, WP014 00 and figure 1, WP024 01.	

**Table 4. CG Caution Displayed Inflight - 162394 AND UP, ALSO
161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)**

Malfunction is caused by one of the items listed below:		
Aircraft Wiring Fuel Quantity Gaging Intermediate Device No. 1 Fuel Tank Transfer Control Valve No. 1 Fuel Tank Transfer Jet Ejector No. 1 Fuel Tank Fuel Transfer Shutoff Valve and Pilot Valve No. 4 Fuel Tank Transfer Control Valve No. 4 Fuel Tank Transfer Jet Ejector No. 4 Fuel Tank Transfer Shutoff Valve and Pilot Valve No. 7 Circuit Breaker/Relay Panel Assembly No. 8 Circuit Breaker/Relay Panel Assembly No. 9 Relay Panel Assembly		
Procedure	No	Yes
<div style="text-align: center;">  </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. <p>If this table is used to troubleshoot a C.G. Caution displayed inflight with left engine off, high state of transfer fuel and nose up attitude, no further troubleshooting is required if the malfunction is not duplicated after the test. The malfunction is inherent to the fuel system design.</p>		
a. Do substeps below:		
(1) Apply external electrical power (A1-F18AC-LMM-000).		
(2) Set up cockpit Digital Display Indicator IP-1317() for displays (A1-F18AC-LMM-000).		
(3) Do a fuel quantity gaging BIT test, Table 1 (WP024 00). Was CG caution displayed?	b	c
b. Do Table 2. CG Caution Not Displayed When Selecting BIT	-	-
c. Do substeps below:		
(1) On F/A-18A, remove door 18 (A1-F18AC-LMM-010).		

**Table 4. CG Caution Displayed Inflight - 162394 AND UP, ALSO
161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)**

Procedure	No	Yes
(2) On F/A-18B, remove door CPJ (A1-F18AC-LMM-010). (3) Turn off external electrical power (A1-F18AC-LMM-000). (4) Disconnect connector 5P-E035. (5) Open door 10L (A1-F18AC-LMM-010). (6) On no. 8 circuit breaker/relay panel assembly (door 10L), open FUEL LOW LVL WRN circuit breaker (zone A5), (WP018 00, figure 4.) (7) Turn on external electrical power (A1-F18AC-LMM-000). (8) On FUEL QTY indicator, set and hold FUEL QTY selector in BIT. Does 28vdc exist at 5P-E035, pin 13?	d	e
d. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000). (2) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057C (door 10L). (3) Does continuity exist from: 5P-E035 pin 11 to ground 5P-E035 pin 12 to ground 5P-E035 pin 13 to 52P-C057C pin E?	f	g
e. Turn off external electrical power (A1-F18AC-LMM-000) and connect 5P-E035. To verify transfer piping, do a Transfer Leak Test, table 1 (WP012 02). If aircraft passes leak test, continue to step o.		
f. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step t	-	-
g. Do substeps below:		
(1) On no. 8 circuit breaker/relay panel assembly (door 10L), disconnect 52P-C159F. (2) Does continuity exist from: 52J-C159F pin 23 to 52J-C159F pin 31?	h	i
h. Isolate between the 5K-C052 fuel low level relay no. 2 and the no. 8 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP030 00) and do step t	-	-
i. Do substeps below:		

**Table 4. CG Caution Displayed Inflight - 162394 AND UP, ALSO
161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)**

Procedure	No	Yes
(1) On no. 7 circuit breaker/relay panel assembly, disconnect 52P-C057D (door 10L).		
(2) Does continuity exist from:		
52J-C057D pin 55 to 52J-C057C pin E?	j	k
j. Isolate between 5K-C161 negative G relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step t	-	-
k. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Set and hold FUEL QTY selector knob to BIT.		
(3) Does 28vdc exist at 52J-C057D, pin 100?	l	m
l. Isolate between 5K-C158 tank 1 transfer control relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step t	-	-
m. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) On no. 9 relay panel assembly disconnect 52P-C161 (door 10L).		
(3) Does continuity exist from:		
52P-C161, pin 30 to 52P-C159F pin 23		
52P-C161, pin 32 to 52P-C057D pin 100		
52P-C161, pin 34 to 52P-C057D pin 99		
52P-C057D, pin 55 to 52P-C159F pin 31?	f	n
n. Isolate between 5K-C159 tank 1 transfer time delay relay and no. 9 relay panel assembly wiring (A1-F18AC-420-300, WP041 00) and do step t	-	-
o. Do substeps below:		
(1) If required, refuel or defuel (A1-F18AC-PCM-000) aircraft between 3400 and 5000 TOTAL LBS.		
(2) Prepare aircraft for engine operation (A1-F18AC-LMM-000).		

**Table 4. CG Caution Displayed Inflight - 162394 AND UP, ALSO
161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)**

Procedure	No	Yes
<p>(3) On fuel system test set, set switches as listed below:</p> <p>S1 - WING XFER S2 - FUS XFER S5 - CLOSED S6 - OPEN S7 - WING S8 - XFR S9 - OFF S10 - OFF S11 - SEA LVL S12 - OFF S13 - NORM S14 - ON S15 - ON CB1 - closed D3 - FUEL INDICATOR - Selector knob to TRANS</p>		
(4) Open door 8 (A1-F18AC-LMM-010).		
(5) Operate engines at ground IDLE (A1-F18AC-LMM-000).		
(6) On FUEL CHECK PANEL (door 8), set and hold TK INTCON V CHK switch to CHK.		
(7) Does TK 1 V POS light come on?	p	q
p. Do Table 7, WP013 01, then do step r	-	-
q. Monitor cockpit FUEL QTY indicator, RIGHT counter in TRANS setting (tank 4). Is RIGHT counter fuel amount decreasing?	r	s
r. Do substeps below:		
(1) Shut down engines (A1-F18AC-LMM-000).		
(2) Remove no. 4 fuel tank transfer jet ejector (A1-F18AC-460-300, WP117 00). If ejector is clogged or damaged, replace ejector (A1-F18AC-460-300, WP117 00). If ejector is good reinstall ejector. Replace no. 4 fuel tank transfer shutoff valve and pilot valve (A1-F18AC-460-300, WP116 00) and no. 4 fuel tank transfer control valve (A1-F18AC-460-300, WP116 03)	-	-
s. Do substeps below:		
(1) Monitor LEFT (tank 1) and RIGHT (tank 4) counters in TRANS setting.		
(2) Monitor TANK 1 OFF light.		

**Table 4. CG Caution Displayed Inflight - 162394 AND UP, ALSO
161353 THRU 161987 AFTER F/A-18 AFC 48 (Continued)**

Procedure	No	Yes
(3) Record LEFT and RIGHT counter amounts at the time when the TANK 1 light comes on and goes off. Allow TANK 1 light to cycle on and off several times.		
(4) Shut down engines (A1-F18AC-LMM-000).		
(5) Compare tank 1 and tank 4 recorded amounts with fig. 1 (F/A-18A) or fig. 2 (F/A-18B).		
(6) Do applicable substeps below:		
(a) If no. 1 fuel tank does not transfer, do Table 4, WP013 01.		
(b) If no. 1 fuel tank transfers, but does stop transfer, or if tanks 1 and 4 do not deplete per the CG control range, the malfunction has been isolated to one of the following items: Fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and no. 1 fuel tank transfer control valve (A1-F18AC-460-300, WP105 01) and no. 1 fuel tank transfer shutoff valve (A1-F18AC-460-300, WP105 00)	-	-
t. If disconnected, opened, or removed during this procedure, make sure the items below are installed, connected, or closed:		
(1) Connectors 5P-E035, 52P-C057C, 52P-C057D, 52P-C159F, 52P-C161		
(2) FUEL LOW LVL WRN circuit breaker (door 10L)		
(3) Doors 8 10L 18 CPJ	-	-

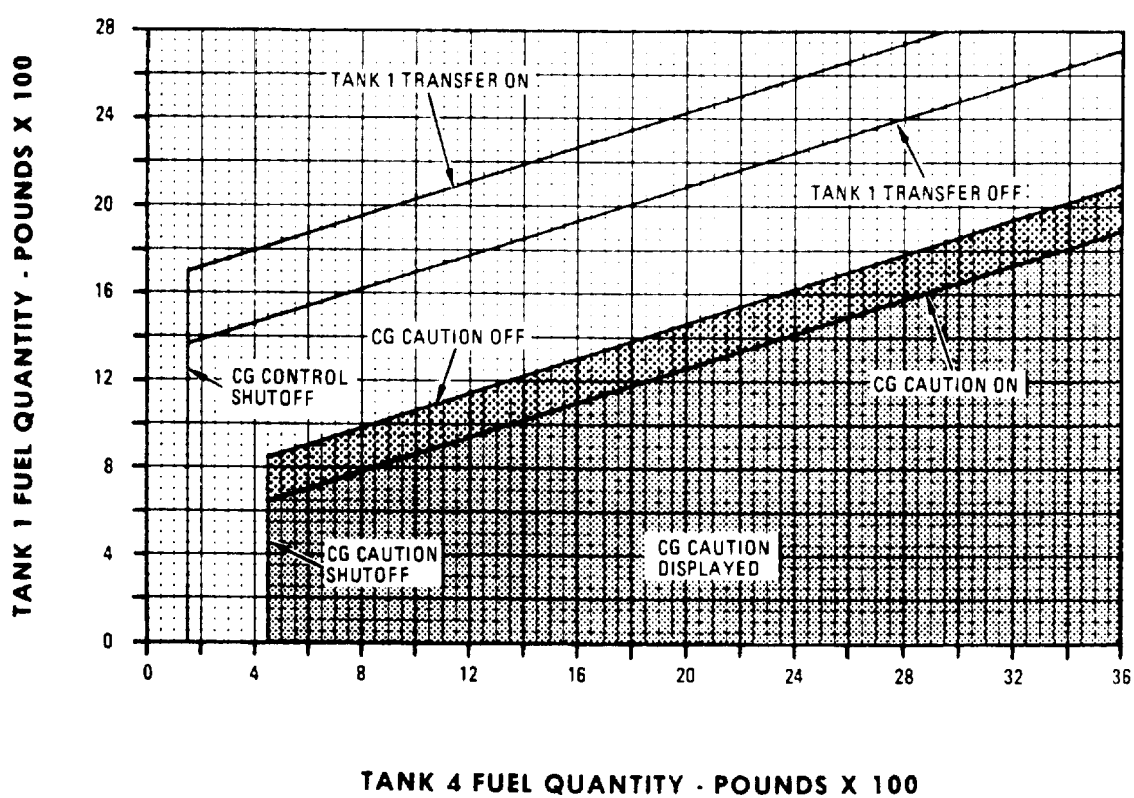


Figure 1. F/A-18A Fuel Transfer Limits

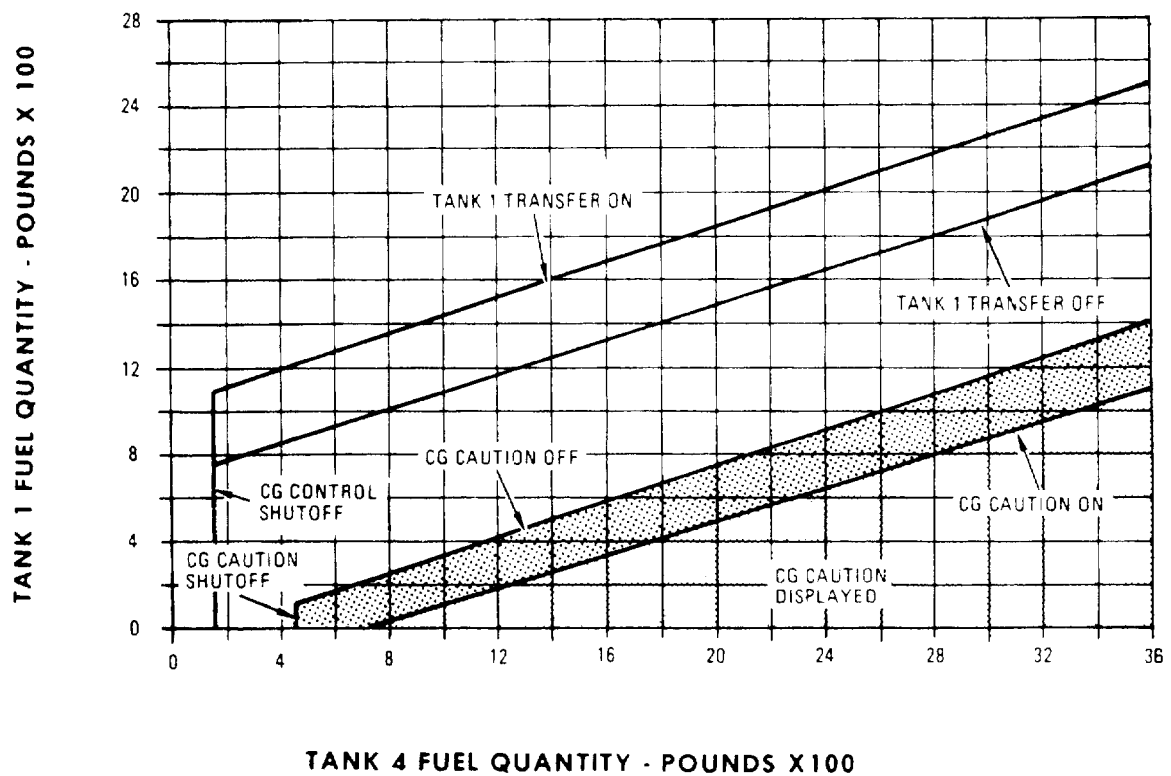


Figure 2. F/A-18B Fuel Transfer Limits

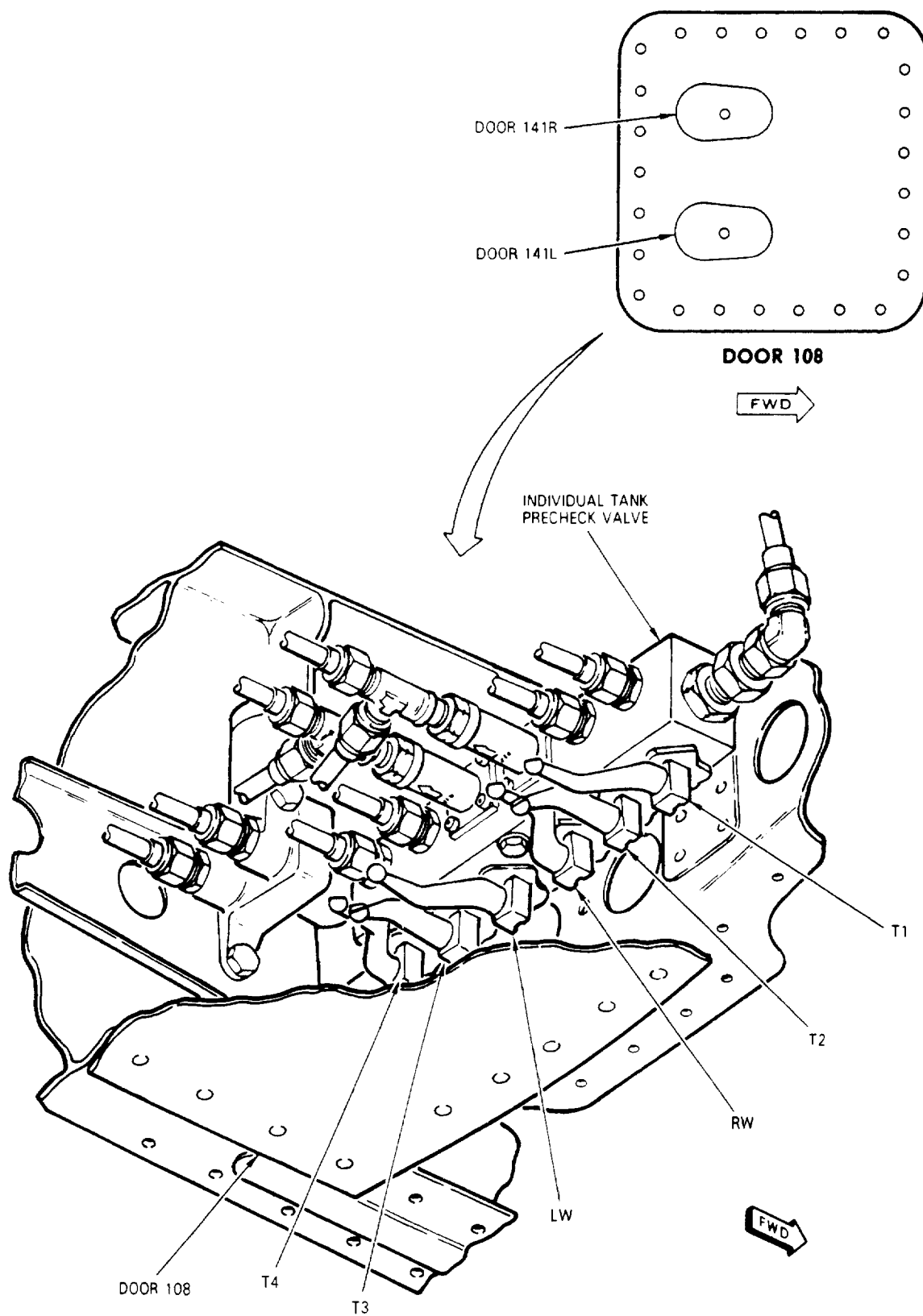


Figure 3. CG System Test Component Locator

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
CG CONTROL SYSTEM

Reference Material

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Plane Captain Manual	A1-F18AC-PCM-000
Wiring Diagrams	A1-F18A()-WDM-000

Alphabetical Index

Subject	Page No.
CG Caution Not Displayed, Table 2	5
CG Caution Remians On After BIT, Table 1	2

Record of Applicable Technical Directives

None

Table 1. CG Caution Remains On After BIT

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
77/BN	Multimeter	
Materials Required		
None		
NOTE		
CG Control System Schematic (A1-F18AC-460-500, WP014 00) and Inflight Refueling System Schematic (A1-F18AC-460-500, WP005 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP006 00, figure 1, WP014 00 and figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Fuel System Control Panel Air Data Computer Fuel Quantity Gaging Intermediate Device No. 3 Relay Panel Assembly No. 7 Circuit Breaker/Relay Panel Assembly		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 1. CG Caution Remains On After BIT (Continued)

Procedure	No	Yes
a. On cockpit FUEL system control panel, is PROBE control switch set to RETRACT?	b	c
b. Set PROBE control switch to RETRACT and do BIT test again. Does CG caution remain on after BIT complete?	p	c
c. Do substeps below:		
(1) Open door 32R (A1-F18AC-LMM-010).		
(2) Turn off electrical power (A1-F18AC-LMM-000).		
(3) Disconnect 85P-N002A from Signal Data Converter CV-3493/ASM-612.		
(4) Does a ground exist at 85P-N002A pin 46?	d	e
d. Do substeps below:		
(1) Open door 13L (A1-F18AC-LMM-010).		
(2) Disconnect 52P-E059 from the no. 3 relay panel assembly.		
(3) Turn on electrical power (A1-F18AC-LMM-000).		
(4) Does 28vdc exist at 52P-E059 pin 74?	f	g
e. Do substeps below:		
(1) Open door 14R (A1-F18AC-LMM-010).		
(2) Disconnect 85P-F001A from Signal Data Recorder RO-508/ASM-612.		
(3) Disconnect 5P-F014B from fuel quantity intermediate device.		
(4) Does continuity exist from:		
5P-F014A pin 14 to 85P-F001A pin 68		
5P-F014A pin 18 to 85P-F001A pin 61?	h	i
f. Does continuity exist from 52P-E059 pin 29 to 85P-N002A pin 46?	h	j
g. Replace fuel system control panel (A1-F18AC-460-300, WP104 00) and do step p	-	-
h. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step p	-	-
i. Do substeps below:		
(1) Open doors 10L and 13R (A1-F18AC-LMM-010).		

Table 1. CG Caution Remains On After BIT (Continued)

Procedure	No	Yes
(2) Disconnect 82P-F001A from Control-Converter C-10382/A (door 13R).		
(3) On 161520 THRU 161987, disconnect 52P-C057C and 52P-C057E from no. 7 circuit breaker/relay panel assembly (door 10L).		
(4) On 162394 AND UP, disconnect 52P-C057F and 52P-C057E from no. 7 circuit breaker/relay panel assembly (door 10L).		
(5) Disconnect 5P-F014B from fuel quantity gaging intermediate device.		
(6) Disconnect 70P-F001B from Air Data Computer CP-1334/A.		
(7) On 161520 THRU 161987, does continuity exist from: 52P-C057E pin 73 to 82P-F001A pin 121 52P-C057C pin W to 5P-F014B pin 36 82P-F001A pin 120 to 5P-F014B pin 25?	h	k
(8) On 162394 AND UP, does continuity exist from: 52P-C057E pin 73 to 82P-F001A pin 121 52P-C057F pin 85 to 5P-F014B pin 36 82P-F001 pin 120 to 5P-F014B pin 25?	h	k
j. Isolate between 5K-E004 IFR switch position relay and no. 3 relay panel assembly wiring (A1-F18AC-420-300, WP035 00) and do step p	-	-
k. Does a ground exist at 52J-C057E pin 73?	l	m
l. Does a ground exist at 70J-F001B pin 59?	n	o
m. Isolate between 5K-C158 tank 1 transfer control relay and no. 7 circuit breaker/relay panel assembly wiring (A1-F18AC-420-300, WP027 00) and do step p	-	-
n. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00) and do step p	-	-
o. Replace Air Data Computer CP-1334/A (A1-F18AC-560-300, WP003 00) and do step p	-	-
p. If opened, disconnected, or removed during this procedure, make sure the items below are connected, installed, or closed: (1) Connectors 5P-F014B, 52P-C057C, 52P-C057E, 52P-C057F, 52P-E059, 70P-F001B, 85P-F001A and 85P-N002A		
(2) Doors 10L, 13L, 13R, 14R and 32R	-	-

Table 2. CG Caution Not Displayed

Support Equipment Required		
NOTE		
Alternate item type designation or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
77/BN	Multimeter	
Materials Required		
None		
NOTE		
CG Control System Schematic (A1-F18AC-460-500, WP014 00), figure 1 may be used while doing this procedure.		
For component location, refer to figure 1, WP024 01.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Fuel Quantity Gaging Intermediate Device		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay contacts may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 2. CG Caution Not Displayed (Continued)

Procedure	No	Yes
a. On F/A-18A, do substeps below:		
(1) Turn off electrical power (A1-F18AC-LMM-000).		
(2) Open door 14R (A1-F18AC-LMM-010).		
(3) Disconnect 5P-F014B from J4 on fuel quantity gaging intermediate device.		
(4) Does continuity exist from 5P-F014B pin 38 to 5P-F014B pin 41?	c	d
b. On F/A-18B, do step d	-	-
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000) and do step e	-	-
d. Replace fuel quantity gaging intermediate device (A1-F18AC-460-300, WP162 00), and do step e	-	-
e. Connect 5P-F014B (F/A-18A) and close door 14R (F/A-18A) (A1-F18AC-LMM-010)	-	-

ORGANIZATIONAL MAINTENANCE
TESTING AND TROUBLESHOOTING
TROUBLESHOOTING
PRESSURE TRANSDUCERS

Reference Material

Fuel System Maintenance With IPB	A1-F18AC-460-300
Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Wiring Diagram	A1-F18AC-WDM-000

Alphabetical Index

Subject	Page No.
External Tanks Air Pressure Transducer Reading Wrong, Table 6	9
Fuselage Transfer Pressure Transducer Reading Wrong, Table 2	3
Left Boost Inlet Pressure Transducer Reading Wrong, Table 3	5
Refuel Scavenge Line Pressure Transducer Reading Wrong, Table 7	11
Right Boost Inlet Pressure Transducer Reading Wrong, Table 4	6
Vent Tank Pressure Transducer Reading Wrong, Table 5	8
Wing Transfer Pressure Transducer Readings Wrong, Table 1	2

Record of Applicable Technical Directives

None

Table 1. Wing Transfer Pressure Transducer Readings Wrong

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
77/BN	Multimeter	
Materials Required		
None		
NOTE		
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP014 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Wing Transfer Pressure Transducer (5MTR125)		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <div>NOTE</div> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity.		

Table 1. Wing Transfer Pressure Transducer Readings Wrong (Continued)

Procedure	No	Yes
a. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).		
(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).		
Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 26 to 34?		
Does 325 to 1200 ohms resistance exist from 5J-R135 pins 27 to 35?	b	-
b. Does continuity exist from:		
5J-R135 pin 26 to WTR008 wire Q279B26		
5J-R135 pin 34 to WTR008 wire Q281B26		
5J-R135 pin 27 to WTR008 wire Q280B26		
5J-R135 pin 35 to WTR008 wire Q282B26 (A1-F18A()-WDM-000)?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace wing transfer pressure transducer (5MTR125) (A1-F18AC-460-300, WP067 00)	-	-

Table 2. Fuselage Transfer Pressure Transducer Reading Wrong

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Internal Fuel Transfer System Schematic (A1-F18AC-460-500, WP007 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP014 00.	

Table 2. Fuselage Transfer Pressure Transducer Reading Wrong (Continued)


Malfunction is caused by one of the items listed below:		
Aircraft Wiring Fuselage Transfer Pressure Transducer (5MTR126)		
Procedure	No	Yes
<div style="text-align: center;">  <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p style="text-align: center;">NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).		
(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).		
Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 43 to 49?		
Does 325 to 1200 ohms resistance exist from 5J-R135 pins 44 to 50?	b	-
b. Does continuity exist from:		
5J-R135 pin 43 to WTP009 wire Q284B26		
5J-R135 pin 49 to WTP009 wire Q286B26		
5J-R135 pin 44 to WTP009 wire Q285B26		
5J-R135 pin 50 to WTP009 wire Q287B26 (A1-F18A()-WDM-000)?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace fuselage transfer pressure transducer (5MTP126) (A1-F18AC-460-300, WP068 00)	-	-

Table 3. Left Boost Inlet Pressure Transducer Reading Wrong


Support Equipment Required				
NOTE				
Alternate item type designations or part numbers are listed in parentheses.				
Part Number or Type Designation	Nomenclature			
260-6XLP (AN/USM-311)	Multimeter			
Materials Required				
None				
NOTE				
Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used while doing this procedure.				
For component location, refer to figure 2, WP014 00.				
Malfunction is caused by one of the items listed below:				
Aircraft Wiring Left Boost Inlet Pressure Transducer (5MTP127)				
Procedure	No	Yes		
<div></div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <div><div>a. Do substeps below:</div><div><div>(1) Turn off external electrical power (A1-F18AC-LMM-000).</div><div>(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).</div></div></div>				

Table 3. Left Boost Inlet Pressure Transducer Reading Wrong (Continued)

Procedure	No	Yes
(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).		
Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 45 to 51?		
Does 325 to 1200 ohms resistance exist from 5J-R135 pins 46 to 52?	b	-
b. Does continuity exist from:		
5J-R135 pin 45 to WTP010 wire Q289B26		
5J-R135 pin 51 to WTP010 wire Q291B26		
5J-R135 pin 46 to WTP010 wire Q290B26		
5J-R135 pin 52 to WTP010 wire Q292B26 (A1-F18A()-WDM-000)?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace left boost inlet pressure transducer (5MTP127) (A1-F18AC-460-300, WP069 00)	-	-

Table 4. Right Boost Inlet Pressure Transducer Reading Wrong

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Engine Fuel Supply System Schematic (A1-F18AC-460-500, WP008 00) may be used while doing this procedure.	
For component location, refer to figure 2, WP014 00.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
Right Boost Inlet Pressure Transducer (5MTR128)	

Table 4. Right Boost Inlet Pressure Transducer Reading Wrong (Continued)


Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).		
(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).		
Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 30 to 38?		
Does 325 to 1250 ohms resistance exist from 5J-R135 pins 31 to 39?	b	-
b. Does continuity exist from:		
5J-R135 pin 30 to WTR007 wire Q294B26		
5J-R135 pin 38 to WTR007 wire Q296B26		
5J-R135 pin 31 to WTR007 wire Q295B26		
5J-R135 pin 39 to WTR007 wire Q297B26 (A1-F18A()-WDM-000)?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace right boost inlet pressure transducer (5MTR128) (A1-F18AC-460-300, WP070 00)	-	-

Table 5. Vent Tank Pressure Transducer Reading Wrong

Support Equipment Required		
NOTE		
Alternate item type designations or part numbers are listed in parentheses.		
Part Number or Type Designation	Nomenclature	
260-6XLP (AN/USM-311)	Multimeter	
Materials Required		
None		
NOTE		
Fuel Pressurization and Vent System Schematic (A1-F18AC-460-500, WP011 00) may be used while doing this procedure.		
For component location, refer to figure 1, WP023 00.		
Malfunction is caused by one of the items listed below:		
Aircraft Wiring Vent Tank Pressure Transducer (5MTT129)		
Procedure	No	Yes
<div>CAUTION</div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none">1. Pin to pin test per procedural step.2. Shorts to ground.3. Shorts between surrounding pins on connectors.4. Shorts between shield and conductors.5. Shield continuity. <p>a. Do substeps below:</p> <p>(1) Turn off external electrical power (A1-F18AC-LMM-000).</p>		

Table 5. Vent Tank Pressure Transducer Reading Wrong (Continued)

Procedure	No	Yes
(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).		
(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).		
Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 15 to 23?		
Does 325 to 1200 ohms resistance exist from 5J-R135 pins 16 to 24?	b	-
b. Do substeps below:		
(1) Remove door 52 (A1-F18AC-LMM-010).		
(2) Disconnect connector 22P-P030 (door 52).		
(3) Does continuity exist from:		
5J-R135 pin 15 to 22P-P030 pin 15		
5J-R135 pin 23 to 22P-P030 pin 21		
5J-R135 pin 16 to 22P-P030 pin 16		
5J-R135 pin 24 to 22P-P030 pin 22 (A1-F18A()-WDM-000)?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace vent tank pressure transducer (5MTT129) (A1-F18AC-460-300, WP071 00)	-	-

Table 6. External Tanks Air Pressure Transducer Reading Wrong

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	

Table 6. External Tanks Air Pressure Transducer Reading Wrong (Continued)

<div>NOTE</div> <div>External Fuel System Schematic (A1-F18AC-460-500, WP006 00) may be used while doing this procedure.</div> <div>For component location refer to figure 1, WP011 00.</div> <div>Malfunction is caused by one of the items listed below:</div> <div>Aircraft Wiring</div> <div>External Tanks Air Pressure Transducer (5MTR130)</div>		
Procedure	No	Yes
<div>CAUTION</div> <div>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</div> <div>NOTE</div> <div>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</div> <div>1. Pin to pin test per procedural step.</div> <div>2. Shorts to ground.</div> <div>3. Shorts between surrounding pins on connectors:</div> <div>4. Shorts between shield and conductors.</div> <div>5. Shield continuity.</div> <div>a. Do substeps below:</div> <div>(1) Turn off external electrical power (A1-F18AC-LMM-000).</div> <div>(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).</div> <div>(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).</div> <div>Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 6 to 13?</div> <div>Does 325 to 1200 ohms resistance exist from 5J-R135 pins 7 to 14?</div> <div>b. Does continuity exist from:</div> <div>5J-R135 pin 6 to WTR005 wire Q224B26</div> <div>5J-R135 pin 13 to WTR005 wire Q226B26</div> <div>5J-R135 pin 7 to WTR005 wire Q225B26</div> <div>5J-R135 pin 14 to WTR005 wire Q227B26 (A1-F18A()-WDM-000)?</div>		
	b	-
	c	d


Table 6. External Tanks Air Pressure Transducer Reading Wrong (Continued)

Procedure	No	Yes
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace external tanks air pressure transducer (5MTR130) (A1-F18AC-460-300, WP072 00)	-	-

Table 7. Refuel Scavenge Line Pressure Transducerb Reading Wrong

Support Equipment Required	
NOTE	
Alternate item type designations or part numbers are listed in parentheses.	
Part Number or Type Designation	Nomenclature
260-6XLP (AN/USM-311)	Multimeter
Materials Required	
None	
NOTE	
Refuel/Defuel System Schematic (A1-F18AC-460-500, WP004 00) may be used while doing this procedure.	
For component location, refer to figure 1, WP003 02.	
Malfunction is caused by one of the items listed below:	
Aircraft Wiring	
Refuel Scavenge Line Pressure Transducer (5MTF140)	

**Table 7. Refuel Scavenge Line Pressure Transducerb
Reading Wrong (Continued)**

Procedure	No	Yes
<div style="text-align: center;">  <p>CAUTION</p> </div> <p>To prevent damage to low level devices (switches/relay contacts), do not test for continuity with multimeter on the RX1 scale. Pin to pin tests that do not go through switches/relay may use the RX1 scale.</p> <div style="text-align: center;"> <p>NOTE</p> <p>The question used in logic tree “Does continuity exist?” means to test for the items listed below:</p> <ol style="list-style-type: none"> 1. Pin to pin test per procedural step. 2. Shorts to ground. 3. Shorts between surrounding pins on connectors. 4. Shorts between shield and conductors. 5. Shield continuity. </div>		
a. Do substeps below:		
(1) Turn off external electrical power (A1-F18AC-LMM-000).		
(2) Disconnect fuel test cable (door 46R or right MLG wheelwell).		
(3) Test the transducer ohms resistance at 5J-R135 fuel ground test receptacle (door 46R or right MLG wheelwell).		
Does 1200 to 3000 ohms resistance exist from 5J-R135 pins 11 to 18?		
Does 325 to 1200 ohms resistance exist from 5J-R135 pins 12 to 19?	b	-
b. Does continuity exist from:		
5J-R135 pin 11 to WTF003 wire Q310B26		
5J-R135 pin 18 to WTF003 wire Q312B26		
5J-R135 pin 12 to WTF003 wire Q311B26		
5J-R135 pin 19 to WTF003 wire Q313B26 (A1-F18A()-WDM-000)?	c	d
c. Isolate defective aircraft wiring (A1-F18A()-WDM-000)	-	-
d. Replace scavenge line pressure transducer (5MTF140) (A1-F18AC-460-300, WP073 00)	-	-